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Ongoing Monitoring Report (July 2023 - April 2024)

PFAS Ongoing Monitoring Program - RAAF Base Tindal

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Executive summary

Background

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement the per-and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP). The OMP is outlined in the PFAS Management Area Plan (PMAP) developed for the Royal Australia Air Force (RAAF) Base Tindal ('the base'), Northern Territory (NT). The PMAP was published by Defence in 2019.

The OMP (Defence, 2021b) outlines the rationale and scope for monitoring the concentrations and extent of PFAS in groundwater and surface water originating from the base, as well as PFAS concentrations in animals within the Katherine River. The OMP prescribes multiple periodic monitoring events to capture trends in groundwater and surface water conditions across both wet and dry seasons. Sampling under these different climatic conditions provides a better understanding of the patterns of movement and concentrations of PFAS in the environment. The 2021 OMP is currently being reviewed and amended to account for new sampling locations and monitor seasonal response of the groundwater plume.

The OMP was undertaken within the RAAF Base Tindal PFAS Management Area, and at select locations south and west of the Management Area. The Management Area covers the base and selected off-base areas, including Uralla, Katherine, Emungalan and Cossack west of Katherine River, and surface waterbodies including Tindal Creek, Katherine River, Katherine Hot Springs, and the Katherine Town Council Swimming Pool.

Six PFAS source areas have been identified on the base. The Fire Training Area (FTA) and Fire Station Area (FSA) are identified as the two key PFAS source areas on the base.

Objective

The objective of implementing the OMP is to provide information on changes in the location and concentrations of PFAS in groundwater, surface water and select biota (fish and crustaceans) on-base and off-base in and around the Management Area. The data is used to assist risk management decisions by Defence to protect human health and the environment, and to inform the understanding of the effectiveness of remedial actions.

Monitoring Program

AECOM completed monitoring of groundwater, surface water, fish and crustaceans between July 2023 and April 2024. The monitoring targeted PFAS at 49 groundwater wells, 13 surface water locations and two aquatic biota locations both on-base and off-base.

Interpretive Assessment

Data collected during the monitoring period were compared to historical data collected since 2017[1] at the nominated sampling locations.

Groundwater Results

Groundwater monitoring data indicated that groundwater flows to the west across the base and continues westwards towards Katherine River, consistent with historical data. Groundwater continues to discharge into the Katherine River through seeps and preferential pathways within the Tindall Limestone Aquifer[2].

What is an 'order of magnitude'?

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

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

[1] PFOS and PFOA and 6:2 FtS have been monitored in groundwater (at one location) and surface water (at three locations) since 2014.
[2] An aquifer is an underground layer of porous and permeable rock, gravel, sand or silt, which can contain or transmit groundwater that lies within the geology below the base.

The reported concentrations of PFAS in groundwater east of the Katherine River are within the same order of magnitude as historical results and show the current extent of PFAS contamination. The results suggest that the plume size is unchanged, except for Cossack, west of Katherine River, where the plume may be migrating westward.

The following were observed:

- Data collected over the monitoring period indicated that the PFAS groundwater plume is seasonally influenced. Locations in Cossack at the leading edge of the plume reported higher PFAS concentrations during the mid to late wet season.
- Groundwater data collected over the monitoring period suggested the leading edge of the PFAS plume may be migrating westward in Cossack with detections at or just above the drinking water criteria. The rate and direction of migration may be influenced by preferential pathways within the Tindall Limestone Aquifer and/or groundwater via extraction from registered and potentially unregistered groundwater bores in the area.
- PFAS-impacted groundwater regularly discharges into Katherine River. The concentrations of PFAS recorded during late dry season were higher than during wet season, when surface water runoff is a greater contributor to river flow.
- The FSA and FTA have undergone or are undergoing remediation works (soils / infrastructure groundwater). PFAS groundwater results from downgradient of the FTA soil remediation area collected during the monitoring period show initial signs that PFAS movement from the FTA through groundwater is reducing. Due to the apparent seasonal variation in PFAS concentrations, further monitoring is required to determine the influence of the works in reducing surface water and groundwater concentrations at, and downgradient of the two key source areas.
- Base operation of the two on-base PFAS water treatment plants continue to remove PFAS from groundwater. Their performance is currently under review.

Surface Water Results

- PFAS concentrations decreased in Tindal Creek at the base boundary throughout the monitoring period. This may be attributed to how the soil remediation works at the FSA and FTA.
- No changes in PFAS concentrations were observed in Katherine River or Katherine Hot Springs over the monitoring period.
- PFAS concentrations reported within the Katherine Community Swimming Pool remain below the recreational water use health-based guideline values. The pool is currently undergoing renovations and is closed to the public. Testing will resume once the pool is reopened.

Aquatic Biota Results

Results for aquatic biota collected from Katherine River during the monitoring period remain similar to previous conditions. Results from continued monitoring will be used to keep health advisory notices regarding aquatic biota consumption posted by the Northern Territory Department of Health up to date.

CSM and Risk Profile

The CSM describes the PFAS sources, pathways and receptors within the Management Area. The conceptual site model (CSM) was reviewed to incorporate the monitoring data collected between July 2023 and April 2024. This revision of the CSM considered the following:

- **PFAS remediation at the FTA and FSA:** It is anticipated that continued decreases in PFAS concentrations in surface water and groundwater will be observable in the short to long-term (i.e. reduced mass discharge) resulting from soil remedial works undertaken.
- **Seasonal influence on PFAS concentrations in groundwater.** During the wet season, groundwater elevations increase on-base to levels that interact with PFAS in soil at key source areas. Seasonal saturation of PFAS impacted soils in source areas frees PFAS compounds from soil particles and contributes to PFAS in groundwater. Currently, there is not enough data to understand the seasonal impact this interaction has on PFAS concentrations in groundwater throughout the Management Area.
- **Receptor exposure:** Westward movement of the PFAS plume into Cossack and potentially nearby areas were at concentrations that occasionally exceed drinking water criteria. These areas

currently include the use of private drinking water and irrigation bores. A revision of potential receptor exposure pathways is warranted, particularly for groundwater users.

While the current CSM adequately describes the sources, pathways and receptors within the Management Area, additional investigation is required to better predict how individual bores within Cossack respond to changing conditions during the wet and dry seasons and the potential expansion of the PFAS plume further to the west of the Management Area.

In summary, new historical maximums have been detected off-base within this monitoring period. These are typically within the same order of magnitude as historical results. Future monitoring is required to establish whether the increases are due to seasonal variations or representative of an increasing trend and westward plume migration.

Changes in PFAS concentrations reported in groundwater, surface water and aquatic biota will continue to be evaluated through future monitoring and reporting. No new source of PFAS contamination or transport pathways were identified during the reporting period.

Conclusions

The following conclusions are based on the data collected during the monitoring period:

- The monitoring conducted over the current period has met the objectives of the OMP.
- The findings of the interpretive analysis were consistent with the risk profile for the Management Area. However, there is evidence of a potential change in risk in locations within the Management Area in Cossack, west of Katherine River. PFAS concentrations in groundwater have been observed in locations not previously detected and / or above the drinking water criteria, or have reported new maximum concentrations. Additional groundwater investigation is required to better predict plume changes west of Katherine River.
- Reductions in PFAS concentrations in surface water were observed at the base boundary within Tindal Creek, corresponding to soil remediation actions at the FSA and FTA.
- The groundwater monitoring network does not track the extent of the northern plume effectively. Whilst the area north of the central plume is undeveloped land and therefore the risk to individual bore users remains low, additional locations should be included.
- The OMP and SAQP includes monitoring of groundwater across the base and in most down-gradient locations only once at the end of the dry season and does not currently capture both wet and dry season data.
- Groundwater elevation data cannot be collected from the current monitoring well network in Cossack, west of Katherine River.

Ongoing monitoring of groundwater and surface water as part of the OMP (currently being amended to address the above points) will continue to monitor the nature and extent of PFAS, potential migration and any associated changes to the risk profile.

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Abbreviations

Abbreviation	Term
AECOM	AECOM Australia Pty Ltd
AFFF	Aqueous Film Forming Foam
AHD	Australian Height Datum
BOM	Bureau of Meteorology
Coffey	Coffey Environments Australia Pty Ltd
CSM	Conceptual Site Model
CSR	Contaminated Sites Records
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DEPWS	Department of Environment, Parks and Water Security
DSI	Detailed Site Investigation
DO	Dissolved oxygen
DoH	Department of Health
EC	Electrical conductivity
ERA	Ecological Risk Assessment
FSA	Fire Station Area
FSANZ	Food Standards Australia New Zealand
FTA	Fire Training Area
GWE	Groundwater elevation
HEPA	Heads of Environment Protection Authority
HHRA	Human health risk assessment
LOR	Limit of reporting
MEOMS	Mechanical Equipment Operations Maintenance Section
MW	Monitoring well
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NT	Northern Territory
NT Health	Northern Territory Department of Health
OMR	Ongoing Monitoring Report
OMP	Ongoing Monitoring Plan
PAC	Powdered activated carbon
PFAS	Per- and poly-fluoroalkyl substances
PFBS	Perfluorobutanesulfonic acid
PFHpA	Perfluoroheptanoic acid

Abbreviation	Term
PFHxA	Perfluorohexanoic acid
PFHxS	Perfluorohexanesulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PMAP	PFAS Management Area Plan
PWC	Power and Water Corporation
QA/QC	Quality Assurance and Quality Control
RAAF	Royal Australian Air Force
RAP	Remediation Action Plan
SAQP	Sample and Analysis Quality Plan
SW	Surface Water
SWL	Standing Water Level
WTP	Water Treatment Plant

List of units

Unit	Definition	Unit	Definition
^{o}C	Degrees Celsius	mg	Milligrams
cm	Centimetres	mV	Millivolts
L	Litres	µg	Micrograms
mm	Millimetres	µS	Microsiemens
m	Metres	g	grams
km	Kilometres	mbTOC	metres below top of casing
ML	Megalitres	mAHD	metres Australian Height Datum
kg	Kilograms		

1.0 Introduction

1.1 Preamble

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement the per-and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP), (Defence, 2021b) at RAAF Base Tindal ('the base'), Northern Territory (NT) (**Figure F1** in Appendix **A**) which includes preparation of this Ongoing Monitoring Report (OMR). The monitoring undertaken over an one-year period (2023 – 2024), targeted the measurement of PFAS concentrations in a range of environmental media at selected locations on-base and in surrounding off-base areas as defined in the OMP and as shown on **Figure F2, Figure F3, Figure F4 and Figure 5** (**Appendix A**). The environmental media sampled and analysed comprised surface water, groundwater and biota.

In order to meet the objectives of the OMP, the monitoring was undertaken in accordance with the base *Sampling Analysis and Quality Plan* (SAQP) relevant at the time of sampling (revision 4 – revision 6), developed and updated by AECOM (AECOM, 2023a) (AECOM, 2023b) (AECOM, 2023c). The most recent version is revision 6, (AECOM, 2023c) which is included in **Appendix B** and includes consideration of data collected during other projects implemented under the base's PFAS Management Action Plan (PMAP), in addition to the OMP scope.

This OMR has been prepared in accordance with the Defence (2024) *Ongoing Monitoring Program Report Guidance* (Defence, 2024),and is based on monitoring data collected during a 12-month period, with data actively collected between July 2023 and April 2024. It is noted that the data collected in concurrent programs of work delivered by Defence, outside of this current monitoring period, was also used to further refine the understanding of the conceptual site model (CSM) for the base and Management Area. A summary of relevance of these ancillary works to the OMP, is presented in **Section 6.0**.

The overarching objective of the OMP (Defence, 2021b) is to provide information on changes in the nature and extent of PFAS within the environment on-base and in surrounding areas off-base, in and towards Katherine Township and in the Katherine River. The monitoring area is presented in **Figure F1** in **Appendix A**. The data is also required to identify potentially elevated risks to receptors, or potential future receptor risks and to assist in risk management decisions by Defence and Territory Government authorities to protect human health and the environment, and to inform the understanding of the effectiveness of remedial actions.

The OMP (Defence, 2021b) is currently under review and is anticipated to be revised in late 2024.

1.2 OMR purpose

The OMR is a critical resource to communicate and inform key stakeholders, including local community, on the findings and outcomes of PFAS investigation related activities and associated monitoring results in and surrounding the base.

Assessing changes in the distribution, concentration, and transport (pathways and flux) of PFAS impacts against appropriate guideline values provides an:

- Evidence base for targeted and effective risk management decision making to protect human health and environmental receptors.
- Early warning that additional management of PFAS contamination may be required to address first time presence of PFAS in areas not previously understood to be affected by PFAS.

In summary, the monitoring data has been evaluated to assess environmental variability, trends in PFAS concentrations and changes to the known risk profile, to inform review recommendations for the periodic update of the OMP (Defence, 2021b) and PMAP (Defence, 2019).

1.3 Scope

The scope of work for this OMR includes the assessment of nature and distribution of PFAS concentrations, based on data collected over the preceding 12-month period (May 2023 to April 2024)

under the OMP and other base investigations, with data collected between July 2023 and April 2024. This includes the evaluation of data reported during the monitoring period in the following OMP factual reports provided in **Appendix B**:

- RAAF Base Tindal – Dry Season Sampling Events Factual Report 2023 (AECOM, 2023).
- RAAF Base Tindal – Start of Wet Season Sampling Events Factual Report 2024 (AECOM, 2024a).
- RAAF Base Tindal – End of Wet Season Sampling Events Factual Report 2024 (AECOM, 2024b).

2.0 Site setting

2.1 Site description

Table 1 summarises the base identification and setting presented in the PMAP (Defence, 2019).

Table 1 Site Identification and setting summary

Element	Description
Site ID	0990, RAAF Base Tindal
Location	The base is located within a rural, agricultural, and natural land setting, approximately 15 km east of the township of Katherine and accessed by Stuart Highway as shown in **Figure F1** in **Appendix A**. The Katherine Township is the fourth largest urban area in the NT with a population of 9,643 (2021) (Australian Bureau of Statistics, 2021). The town is set on the banks of the Katherine River with residential areas spread along the banks up and down Stuart Highway bridge, predominantly on the eastern side of the river.
Regional climate	The climate of the Katherine region is distinguished by a wet (monsoonal) season and the dry season. The wet season normally lasts from October/November to March/April, and consists of periodic heavy rains in hot and humid conditions with an annual average rainfall of 1063 mm. The dry season normally lasts from April/May to September/October, which consists of mild to hot and mostly rainless weather.
Topography, geology and hydrogeology	The base is situated upon a flat landscape with some minor undulations, rocky outcrops and sub-terranean depressions or sinkholes, which can result in direct connectivity between surface and groundwater. The flat topography of the base reflects the gradient of the wider region. On-base ground elevations range between 130 and 140 metres relative to the Australian Height Datum (m AHD). The township of Katherine and the base are located within the geological formation known as the Daly River group, consisting of Cretaceous sediments, Junduckin Formation of siltstone/sandstone, the Tindall Limestone Aquifer and early to Pre-Cambrian bedrock. The Junduckin Formation overlies the Tindall Limestone Aquifer to the southwest of the base, becoming a confining layer and restricting recharge. The geology was formed in shallow water in the subsiding Daly River basin. The rocks of the Tindall Limestone unit have gentle depositional dips with ‘slump structures’ and minor faults. The Tindall Limestone Aquifer provides high yields of water suitable for multiple uses, including drinking water. The Tindall Limestone Aquifer is unconfined within the base and township area with preferential flows that are a result of the karst nature of the aquifer and are difficult to locate. Whilst localised vertical groundwater flow will be dependent upon the different matrices, fractures and conduit permeability present, lateral groundwater flow direction is predominantly within the subject area is westerly towards the Katherine River. It is noted that previous investigations conducted within the PFAS Management Areas has indicated that the Tindall Karst Aquifer has complex characteristics due to the high heterogeneity of hydraulic properties and is therefore difficult to model and predict.

Element	Description
	Groundwater elevations within the Tindall Limestone Aquifer are reported to range between 90 and 100 m AHD.
Surface water	The Katherine and Tindal districts are drained in the east by tributaries of the Roper River and in the west by tributaries of the Daly River. The main surface water drainage on-base is Tindal Creek. Tindal Creek flows from the eastern portion of the base, passing south of the runway, crossing the Stuart Highway twice and entering the Katherine River downstream of the township. Tindal Creek is ephemeral and does not typically flow between May and November (the dry season). Waterholes are present across the area but only hold water for a short period of time after the wet season. Katherine River is perennial and receives surface and groundwater from the localised area, including the base, and is therefore a receptor of PFAS contamination sourced from the base.
Vegetation	The terrestrial environment surrounding the base consists of large areas of bushland and open forest, with the majority characterised by Darwin box and/or bloodwoods woodland with sorghum, white grass, and tussock grasses. Many of the savannah grasses are shallow rooted annuals that grow in response to rainfall. Fruiting and flowering trees and plants are present in the riparian areas. Patches of irrigated grass lawns are found in the landscaped areas at the base. To the west of the base are small scale mango farms, rural residential properties and a quarry.
Current and previous land use (including AFFF use)	Katherine's previous and current land uses are characterised by a combination of residential, educational, commercial and recreational areas which dominate the Katherine Township and directly adjoining lands. Agricultural land uses, predominantly pastoral livestock grazing, grains and fruit crops, extend along the Stuart Highway to the east and pastoral livestock land to the north and south of the highway. The Cutta Cutta Caves Nature Park is a classic example of a Karst landscape and is located directly southeast of the base and adjoins the base on the south-eastern boundary. There is another small portion of private pastoral property to the south adjoining the base and nature park. RAAF Base Tindal was formally established in 1988 as a home base for the No.75 Squadron. Since its inception as 'Carson Airfield' in 1942, the base has undergone multiple extensions and transformations between the 1950s and 1970s. The base is currently undergoing large scale redevelopment and construction programs to modernise and increase capacity of its current facilities and meet Defence alliance requirements. Uncontrolled and controlled discharge of Aqueous Film Forming Foams (AFFF) during handling and storage for both training and formal applications have been carried out historically at the base (Coffey, 2018a). The use of AFFF on-base were predominantly at six on-base locations which were designated by Coffey (Coffey, 2018a) as either a Confirmed or Likely PFAS presence, and now are listed within Defence's Contaminated Sites Register (CSR). These six source areas are listed in **Section 2.3** below.

2.2 PFAS management area

The PFAS Management Area consists of on-base source areas and off-base receptors, where management actions, including those where institutional controls have been adopted, or are identified / planned for action and / or will be managed in accordance with the PMAP (Defence, 2019), as identified in the HHRA (Coffey, 2018c). The PFAS Management Area comprises five key zones which are monitored for changes in PFAS impact and / or receptor exposure, these extend into the Katherine Township and are outlined below:

- **Zone 1**: Groundwater PFAS concentrations above drinking water and recreational water criteria.
- **Zone 2**: Groundwater PFAS concentrations above drinking water criteria.
- **Zone 3**: Katherine River water downstream of surface water monitoring location surface water (SW) location SW110.
- **Zone 4**: Town water supply (Power & Water): includes treated water from Katherine River.
- **Zone 5**: Groundwater PFAS concentrations below drinking water criteria.

Each zone has tailored precautionary advice for residents to minimise exposure to PFAS. The PFAS Management Areas and zones 1, 2 and 5 are shown on **Figure F1** (**Appendix A**)**.**

2.3 Source areas

The PMAP (Defence, 2019) identified the following six on-base PFAS contamination source areas, as shown on **Figure F1** (**Appendix A**):

- Former Fire Training Area (FTA): PFAS present in soil, groundwater, and surface water.
- Fire Station Area (FSA): PFAS present in soil, groundwater, and surface water.
- Mechanical Equipment Operations Maintenance Section (MEOMS) comprising Vehicle and Equipment maintenance areas: Confirmed minor PFAS present in groundwater and interceptor drains.
- Fuel Farm 1: Confirmed minor PFAS present in groundwater and retention pond.
- Fuel Farm 2: Confirmed minor PFAS present in groundwater and retention pond.
- Solid wastes in the on-base Sewage Treatment Plant (minor contribution).

Additional investigation at four of the source areas confirmed that these were not key or significant sources requiring further remediation. However, it is noted that remediation of PFAS impacted soil has been conducted at two source areas:

- FSA (completed) - remedial works were conducted between July 2022 and July 2023. Remedial works comprised the excavation and on-Base treatment and reuse of PFAS impacted soils
- Former FTA (partially competed) – remedial works commenced in August 2022, are on-going and thus far have comprised:
    - Off-base disposal and thermal treatment of PFAS impacted soil at a licenced facility in Victoria.
    - On-base treatment and reuse of PFAS impacted soils.
    - On-base crushing, treatment and encapsulation of PFAS impacted concrete.

Additional information regarding remedial actions taken at the base and the consequence for changes in PFAS impacts across the PFAS Management Area is provided in **Section 6.1**.

3.0 Sampling and analytical scope and methodology

3.1 SAQP revision history

A number of amendments have been made to sampling locations and/or frequencies which were originally detailed within the RAAF Tindal SAQP from Revision 4 (AECOM, 2023a) to the current version Revision 6 (AECOM, 2023c) (included in **Appendix B**). These amendments are summarised in **Table 2** below.

Table 2 Summary of SAQP amendments between revisions- Rev 4 (2023a) to Rev 6 (2023c)

Rev 4 (January 2023) to Rev 5 (September 2023)	Rev 5 (September 2023) to Rev 6 (December 2023)
Groundwater (off-base private bores - Cossack)	
• Monthly in wet season and once in dry season locations increased from 14 to 15.	• Monthly in wet season and once in dry season locations increased from 15 to 18.
Groundwater (on- and off-base)	
• No change.	• MW732 amended to MW734. Previous version had incorrect well identification.
Surface water (on- and off-base)	
• No change.	• No change.
Aquatic biota (off-base)	
• No change.	• No change.

3.2 Sampling schedule

The RAAF Tindal SAQP Revision 4 (AECOM, 2023a) to Revision 6 (AECOM, 2023c) provide the sampling schedule and rationale for this reporting period between July 2023 to April 2024. The latest SAQP applicable to the most recent monitoring (December 2023 - present) is summarised in **Table 3** below, noting that there have been two modifications to the SAQP between July 2023 and April 2024. In essence, these adopted SAQP modifications consisted of increasing the number of private bores located within Cossack into the monitoring program. Allowing for better characterisation of PFAS concentrations in the leading (western) extent of the PFAS plume. No other modifications to the SAQP occurred over the monitoring period.

Table 3 SAQP Rev 6 sampling schedule (AECOM, 2023c)

Sample matrix (and area if applicable)	Number of sample locations	Frequency	Number of events per year	Approximate monitoring period
Groundwater (off-base private bores - Cossack)	18	Monthly during wet season	6	• November to April
		Once during mid dry season	1	• August
Groundwater (on-base other bores west of Katherine River)	3	Biannual	2	• Late dry season (September – October) • Late wet season (February – March)
Groundwater (on and off-base – other)	28	Annual	1	• Late-dry season (October)
Surface water (off-base)	3	Quarterly	4	• Mid-wet season (January)

Sample matrix (and area if applicable)	Number of sample locations	Frequency	Number of events per year	Approximate monitoring period
				• Late wet season (April) • Mid-dry season (July) • Late dry season (October)
Surface water (on-base and Tindal Creek)	6	Biannual – targeted wet season	2	• Early to mid-wet season (November - January) • Late-wet season (February - April) Determined by when water is observed in on-base drains and Tindal Creek
Surface water (off-base Katherine River)	3	Biannual	2	• Late dry season (September-October) • Mid to late-wet season (February - March)
Surface water (off-base Katherine River)	1	Annual	1	• Late dry season (September - October)
Aquatic biota (off-base)	2	Annual	1	• Late dry season (September - October)

The list of groundwater monitoring wells, surface water and biota locations that were sampled as part of the above monitoring events are listed in **Section 3.3**, and any deviations from the OMP scope are summarised in **Section 3.4** below. The rationale for the well and location selection is summarised in the Revision 6 SAQP (AECOM, 2023c).

3.3 Summary of OMP works completed between 2023 and 2024

A summary of the monitoring works undertaken during the current monitoring period between July 2023 and April 2024, is presented in **Table 4.** OMP works were undertaken in accordance with the relevant SAQP. The deviations from the SAQP are summarised in **Section 3.4**.

The location of the groundwater samples collected in this monitoring period are shown on **Figure F2** and **F3** of **Appendix A**. The surface water and biota sampling locations collected during this monitoring program are presented on **Figure F4** and **Figure F5** of **Appendix A**.

Table 4 Summary of OMP works between July 2023 and April 2024

Event	Relevant SAQP	Sampling completed	Number of locations sampled
Mid dry season July - August 2023	Revision 4	Quarterly surface water	3
		Once in dry season groundwater	15
Late dry season September - October 2023	Revision 5	Biannual groundwater	2
		Annual groundwater	25
		Biannual surface water	3
		Quarterly surface water	3
		Annual biota	2
Start of wet season	Revision 5	Monthly in wet season groundwater	18

Event	Relevant SAQP	Sampling completed	Number of locations sampled
November 2023 - January 2024		Twice in wet season surface water	6
	Revision 6	Monthly in wet season groundwater	17
		Monthly in wet season groundwater	15
		Quarterly surface water	3
End of wet season February - April 2024	Revision 6	Monthly in wet season groundwater	17
		Monthly in wet season groundwater	17
		Biannual groundwater	1
		Twice in wet season surface water	6
		Biannual surface water	3
		Monthly in wet season groundwater	18
		Quarterly surface water	2

3.4 Deviations from the OMP

Sampling deviations and their potential impact on the program are summarised below in **Table 5**.

Table 5 Deviations in OMP SAQP

OMP / SAQP requirement	Deviation	Impact on OMP
Late dry season (September - October 2023) (AECOM, 2023b)		
Collection of a groundwater sample from off-base location POT122 during late dry season (September – October).	POT122 was unable to be sampled as it was deemed unsafe to enter due to both overgrown vegetation and property appeared vacant. Bore has not been sampled in previous rounds, and the property owners have not been contactable.	Data gap on the northern portion of the west side of Katherine River. Tracking of PFAS concentrations in this area is incomplete.
Collection of groundwater samples from off-base location POT119 annually during late dry season (September – October).	Private property bore POT119 was unable to be sampled due to no current access agreement.	Moderate impact. Sample collection at this location functions as a sentinel well location to ensure plume migration is not occurring in this area. The location was last sampled in 2021 under the previous owner's access agreement. Although PFAS concentrations were previously reported below the laboratory limit of reporting (LOR), there is a risk that PFAS has migrated into groundwater in this area.

OMP / SAQP requirement	Deviation	Impact on OMP
		Potential human health risk if private bores in the area become PFAS impacted.
Collection of groundwater samples from off-base locations MW235 and MW734 sampled annually during late dry season (September – October).	MW734, located along the northern boundary transect, was impacted by roots and unable to be sampled, there was no alternative location listed. MW235 has been decommissioned with no alternative location listed.	Minor impact. Alternative locations were unable to be sampled. Data gap within the northern boundary road, however as there were other wells, located further north and south and hydraulically downgradient, were sampled, these can be used for interpretation.
Collection of annual groundwater samples: MW117, MW134, MW138 (September 2023).	Alternative locations sampled due to being impacted by roots: • MW134 → MW732 • MW138 → OTH116 • MW117 → MW118	No impact – alternative nearby locations listed within the SAQP (AECOM, 2023b) were sampled.
Start of wet season (November 2023 - January 2024) (AECOM, 2023b) (AECOM, 2023c)		
Collection of 15 monthly wet season groundwater samples (November 2023).	Three additional groundwater locations were sampled (POT130, POT198 and POT 201) as per Defence's request to add to the OMP.	No impact. The new locations added to revision 6 of the SAQP (AECOM, 2023c).
Collection of monthly wet season groundwater samples from POT126 (December 2023).	POT126 was unable to be sampled due to the property having been sold since the last sampling event and therefore no signed access agreement received from new owners.	Minor impact. As historical results have all reported below the laboratory LOR, the human health risks likely remain low.
Collection of monthly wet season groundwater samples from POT114, POT126, and OTH117 (January 2024).	These three locations were unable to be sampled due to access being declined or unconfirmed.	Minor impact. As historical results for all locations have reported below the laboratory LOR, the human health risks likely remain low.
End of wet season (**February - April 2024**)		
Collection of monthly wet season groundwater samples from POT126 (February and March 2024), and collection of groundwater samples from OTH120 and POT122 (April 2024).	POT126 was unable to be sampled due to not having received a signed access agreement from new owners.	Minor impact. As historical results have all reported below the laboratory LOR, the human health risks likely remain low. It is noted that this location has been added back to the sampling schedule and has been sampled since this reported event.
	OTH120 (Kalano Community) was unable to be sampled due to the bore not being operational.	Minor impact as this well has reported historical results below the laboratory LOR and the bore is not being utilised.
	POT122 (West of Katherine River) unable to be sampled due to not having received a signed access agreement.	Data gap on the northern portion of the west side of Katherine River. Tracking of PFAS concentrations in this area is incomplete. It is noted

OMP / SAQP requirement	Deviation	Impact on OMP
		that this monitoring location is scheduled for replacement in 2024.
Collection of surface water sample from OTH008 (April 2024).	OTH008 was unable to be sampled due to the swimming pool being closed for renovations.	No impact as the pool is not in use. Pool is proposed to be reopened in July 2025. Sampling will be coordinated.

4.0 Quality assurance and quality control

The validation of data presented and interpreted in this report has been previously completed and discussed within the individual factual monitoring reports provided in **Appendix B**.

Data validation procedures employed in the assessment of the field and laboratory quality assurance and quality control (QA/QC) data indicated that the overall quality of the analytical data produced is acceptably reliable for the purpose of this OMR. An examination of sampling analysis data compared to the data validation findings did not indicate any results that required flagging for potential inaccuracies.

AECOM considers the data obtained during the current monitoring period, along with the historical data assessed, to be representative of the on and off-base conditions at the time of monitoring and to be suitable for the temporal assessment of the data.

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, 2021a) Annex L requirements.

5.0 Assessment criteria

The adopted assessment criteria are referenced from the PFAS National Environmental Management Plan 2.0 (NEMP) (HEPA, 2020)[3].

The adopted PFAS assessment criteria are presented in **Table 6** and **Table 7** below and comprise values for the following analytes:

- Perfluorooctanesulfonic acid (PFOS) plus Perfluorohexanesulfonic acid (PFHxS), referred to as PFOS+PFHxS.
- Perfluorooctanoic acid (PFOA).

Table 6 Summary of adopted screening criteria: waters protective of human health and ecological receptors

Human health receptors			
Pathway	**Compound**	**Criteria**	**Comment / reference**
Drinking water - surface water and groundwater	PFOS+PFHxS	0.07 micrograms per litre (µg/L)	These values are from the PFAS NEMP 2.0 (HEPA, 2020). *All surface water and groundwater results were compared to these criteria.*
	PFOA	0.56 µg/L	
Recreational use - surface water and groundwater	PFOS+PFHxS	2 µg/L	The values presented in the PFAS NEMP 2.0 (HEPA, 2020) are from the Guidance on Per and Polyfluoroalkyl (PFAS) in Recreational Water (NHMRC, 2019) guidance on the assessment of PFAS in recreational water released in August 2019. *All surface water and groundwater results were compared to these criteria.*
	PFOA	10 µg/L	
Ecological receptors			
Pathway	**Compound**	**Criteria**	**Comment / reference**
Freshwater (99% species protection values) - surface water and groundwater)	PFOS	0.00023 µg/L	These values are from the PFAS NEMP 2.0 (HEPA, 2020). The 99% level of protection has been applied for slightly to moderately disturbed ecosystems. This approach is 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	

NHMRC: National Health and Medical Research Council
PFOS+PFHxS: Sum of Perfluorooctanesulfonic acid and Perfluorohexanesulfonic acid
PFOA: Perfluorooctanoic acid
PFOS: Perfluorohexanesulfonic acid

[1] = Criteria for PFOS+PFHxS applies to PFOS and PFHxS individually
Note: HEPA (2020) notes that the 99% species protection level for PFOS is close to the level of detection. Agencies may wish to apply a 'detect' threshold in such circumstances rather than a quantified measurement. The laboratory PFOS limit of reporting (LOR) adopted in this report is 0.001 µg/L.

[3] HEPA: Heads of Environment Protection Authority

Consistent with the OMP, (Defence, 2021b), the assessment of groundwater and surface water has considered both drinking water and recreational water usage for both environmental values due to the usage behaviours by identified human receptors associated with both on- and off-base areas. Groundwater is used for recreational activities (i.e. swimming pools, sprinklers and presenting as natural springs which are used as watering holes) surrounding the base. There is a close association of surface water with the Tindall Limestone Aquifer.

Table 7 PFAS criteria summary: aquatic biota

Human health (biota) receptors			
Media	**Chemical**	**Criteria**	**Comment / reference**
Crustaceans, 2 - 6 years (all species)	PFOS	0.065 milligrams per kilogram (mg/kg)	Department of Health (DoH) (2019) *Derivation: Children 2-6 years, median consumption* Occasionally consumed food. Trigger criteria for investigation for crustaceans apply to molluscs.
	PFOA	0.52 mg/kg	
	PFOS+PFHxS	0.065 mg/kg	
Finfish, 2 - 6 years (all)	PFOS	0.0052 mg/kg	DoH (2019). *Derivation: Children 2-6 years, P90 consumption*
	PFOA	0.041 mg/kg	
	PFOS+PFHxS	0.0052 mg/kg	

6.0 Contextual and ancillary information

6.1 Remediation projects

6.1.1 Ongoing groundwater remediation activities

Two groundwater treatment plants (WTPs) are in operation at the FTA and FSA, which are identified in the PMAP as primary source areas (refer to **Section 2.3**). The WTP at the FTA has been in operation since February 2019 and the FSA WTP has been in operation since May 2019. Contaminated groundwater from the Tindall Limestone Aquifer is extracted and transferred into the treatment system, where water is treated (via anion exchange filtration) and then re-injected back into the Tindall Limestone Aquifer or reused on base for operational purposes.

Since commissioning in 2019, both WTPs have treated approximately 1,140 megalitres (ML) and 1,970 ML of extracted groundwater respectively (as of 14 August 2024). Additional aquifer testing and groundwater monitoring has commenced down-gradient of both WTPs to supplement the understanding of PFAS migration from these two primary source areas and identify the impacts that treatment has had on the geometry and magnitude of the two groundwater plumes sourced from the FTA and FSA. This information will be documented in a separate report. Evaluation of WTP effectiveness is not part of this OMR, as the data collected through the OMP is insufficient to fully evaluate the effects the WTPs have upon PFAS mass-flux.

As part of Defence's ongoing PFAS management, Defence has provided alternative drinking water supplies to groundwater users impacted by PFAS contamination. This program has been in place since 2017 and continued through the monitoring period. This includes the recent commissioning of the long-term Katherine town WTP in May 2024, supplying up to 10ML/day of potable water to the community.

A base wide PFAS groundwater and surface water mass flux study is currently being undertaken separately to understand changes in conditions pre- and post-implementation of remedial actions. The information derived from this study will be used, along with other relevant PFAS data, to develop a base-wide Groundwater Remediation Action Plan (RAP), if required.

6.1.2 Soil remediation activities – key source areas

A Soil RAP (Tetra Tech Coffey, 2022) was developed for the base to address PFAS contaminated soils at the two primary source areas (i.e. the FSA and FTA). Soil remediation works commenced at the FSA and FTA in 2022, with the FSA being completed in mid-2023 and works at the FTA expected to be completed in late-2024. Further information is provided below for the status and scope of soil remediation works completed or to be completed.

6.1.2.1 FSA soil remediation

The works at the FSA remediation area comprised excavation of soils containing elevated concentrations of PFAS. Approximately 9,000 m^3 of PFAS impacted soils (out of approximately 10,000 m^3 excavated) were excavated and temporarily stockpiled on-base for characterisation sampling and treatment using a powdered activated carbon (PAC) amendment. The additional 1,000 m^3 of excavated soil was determined by testing to be below the required treatment PFOS+PFHxS concentration of 1 mg/kg and was segregated and included in the reinstated material. Treated and non-treated soils were backfilled into the excavation, compacted, and capped with compacted imported clay fill to reduce vertical infiltration of water and permeability. The reinstatement, compaction and capping of treated soils has been completed, with the planned Hydroseeding to be completed in 2024.

It was anticipated that any potential changes in PFAS concentrations within groundwater resulting directly from soil remediation activities conducted at the FSA is unlikely in the short term (i.e. during the current monitoring period, which is further discussed in **Section 8.0** below). Future OMP monitoring will continue to assess the impact that soil remedial works have had or will have on the spatial and temporal trends in PFAS concentrations in groundwater.

6.1.2.2 FTA soil remediation

Between 2022 - 2024, all FTA infrastructure (training pad and three concrete evaporation ponds) and approximately 23,300 m^3 of soils with elevated PFAS concentrations were excavated at the FTA. 1,000 m^3 had PFAS concentrations above 50 mg/kg and was transported off-base to a facility in Victoria for

thermal destruction. Furthermore, approximately 50 m^3 of PFAS impacted sediments were removed from three evaporation basins, and approximately 70 m^3 of PFAS-impacted concrete material which were also transported interstate for thermal destruction.

All other excavated soils were temporarily stockpiled for characterisation sampling and amended with PAC. Treated soils were then backfilled into the excavation, compacted, and will be capped and recontoured in late 2024 to reduce vertical infiltration.

A total of 1,100 m^3 of concrete from the previous FTA training pad and three evaporation basins has been crushed placed within the treatment excavation area, beneath the cap.

Whilst the soil remediation works are currently ongoing, they are scheduled to be completed prior to the commencement of the 2024-2025 wet season.

An additional 11,000 m^3 of soil containing PFAS is currently being excavated, characterised, and treated using PAC, and will then be backfilled. The soil remediation works are currently ongoing and scheduled to be completed by the end of 2024.

Minor changes in PFAS concentrations and compositions, within groundwater resulting from remediation activities at the FTA have been observed in the data collected during the reporting period (discussed further in **Section 8.3.4** below). It is anticipated that additional improvements are likely to be gradual and may take time to be reflected in monitoring data, particularly given that remedial works have not been completed. Future monitoring will track changes in PFAS concentrations occurring downgradient resulting from soil and infrastructure remediation works at the FTA.

6.2 Related on- and off-base infrastructure projects

6.2.1 Off-base infrastructure projects

As part of Defence's ongoing PFAS management, Defence has provided alternative drinking water supplies to groundwater users impacted by PFAS contamination. This program has been in place since 2017 and continued through the monitoring period. This includes the recent commissioning of the long-term Katherine town WTP in May 2024, supplying up to 10ML/day of potable water to the community.

6.2.2 On-base infrastructure projects

Current on-base infrastructure projects where PFAS impacted soils may have been or will be excavated and managed and therefore have the inadvertent potential to reduce the mobilisation of PFAS across the broader base include, but are not limited to, the following:

- P200 Jet Fuel Storage Tanks
  - Construction and covering of bulk fuel storage tanks.
- P500 Bomber Apron.
  - Construction of a parking apron for aircraft.
- P400 Aircraft Maintenance Support Facility.
  - Construction of a storage facility for aircraft ground support.
- P700 Squadron Operations Facility.
  - Construction of a planning, administrations and communications facility for deployed United States Air Force crews and support staff.
- EST00346 Tindal Redevelopment Stage 6.
  - Base-wide electrical infrastructure upgrades, new water main installed to create a ring main in the water infrastructure network and replacement of valves in the combined potable/fire-fighting hydraulic system, storm water system upgrades, construction of new permanent Living in Accommodations, Camp 3 Fighter OPTECH facilities replacement, Military Working Dog Kennels refurbishment and Northern Regional Operations Centre upgrades/replacement.
- EST00347 Airfield Works and Associated Infrastructure.

  - Runway and taxiway upgrades (extension, widening and strengthening) including Aeronautical Ground Lighting, new aircraft parking apron, new aviation fuel farm, Air Movements Terminal, upgrades to the supporting site infrastructure and AIR6000 NACC Integrated Power Pack works.

- EST06716 Solar Farm
  - Construction of a 6.5-megawatt solar farm outside of main gate along incoming road.
- EST05907 Sewer Works
  - Complete remediation/replacement works for reticulation pipework.
- EST08365 Road Works
  - Road upgrades across the base.
- EST08452 Fire Station Refurbishment
  - Construction of new separate accommodation facility comprising of eight (8) sleeping quarters and a female change / locker room. Includes construction of 50 m of new covered external walkway.
  - Replacement of roof, wall cladding and vapour barrier to air-conditioned area of building including, but not limited to replacement of roof sheeting, vapour barrier, insulation, wall cladding and insulation, flashings and gutters.
- EST08507 Perimeter Fencing
  - Installation of airside fencing.
- EST08494 Southern and Northern Ring Main.
  - Supply bore water to two above ground tanks by constructing a groundwater ring main at base as well as a truck water fill station and hardstand.
- AIR7000-1B.
  - Construction of facilities next to civilian terminal including hangars, support buildings, car park area, and aircraft aprons and taxiways.

On-base infrastructure projects listed above, all include movement of soils and / or changes in existing infrastructure. All works completed on-base are required to conduct works in accordance with the Defence PFAS Construction and Maintenance Framework (Defence, 2021c), and therefore impacts from infrastructure projects are not anticipated. Groundwater and surface water data collected over the reporting period do not suggest that base infrastructure projects have had any material impact on PFAS concentrations in surface water or groundwater at or leaving the base.

6.3 Climate

Climatic data for the region was extracted from the Tindal Airport Bureau of Meteorology (BOM) weather station (014932), located immediately adjacent to the base. The twelve-month monitoring period was characterised by hot and dry winters between July to October 2023 and May to July 2024, and hot, humid wet summers between October 2023 to April 2024.

Total rainfall for 2023 was 972.0 mm, and 762.2 mm for January through July 2024 compared to the mean annual rainfall of 1,060.6 mm (BOM, 2024). The rainfall occurring during the reporting period was 1,027.6 mm over 12 months, which is similar to the mean annual rainfall, although total rainfall for the 2023-2024 wet season was above the long-term average. **Figure 1** (below) shows the mean monthly rainfall for the last six years between 2018 to 2024 (April).

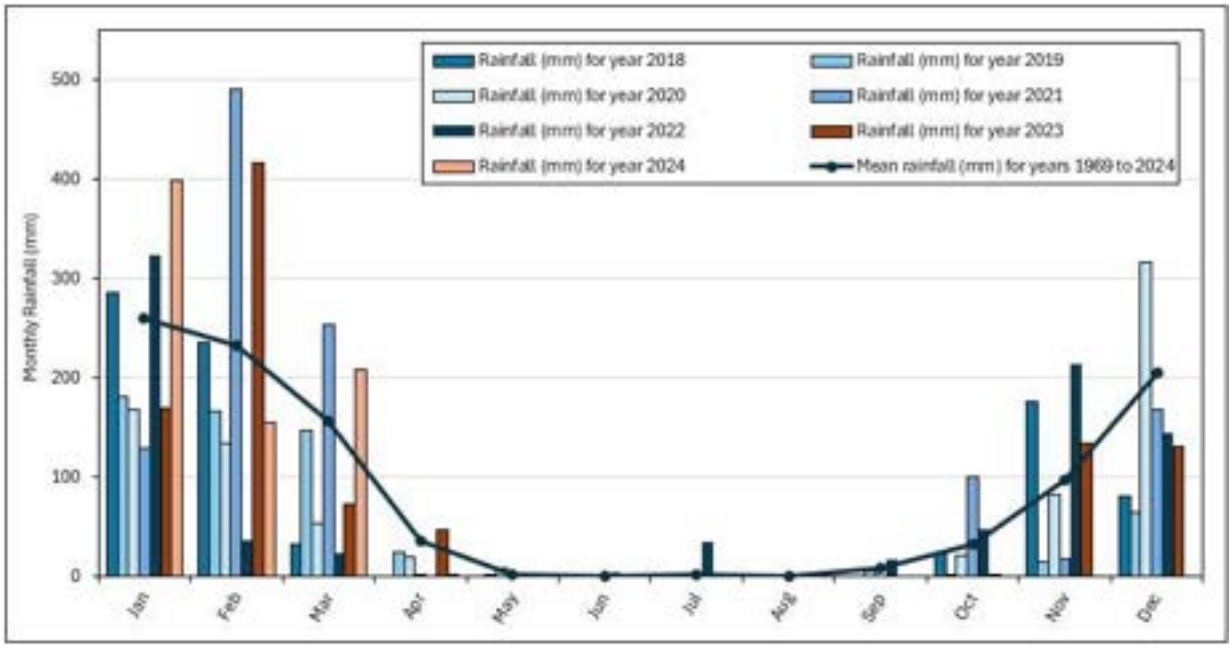

Figure 1 Mean Monthly Rainfall for RAAF Tindal (Station 014932, up to 30 July 2024) (Bureau of Meteorology, 2024)

Monitoring during the past 12 months also included obtaining or measuring water levels within the Katherine River. Measured water levels at the Railway Bridge (Station G8140001) reached a maximum level of 13.331 m (09 March 2024) and a minimum of 0.211 m (30 October 2023) (DEPWS, 2024). River levels for 2023 to 2024 are shown in **Figure 2** (below).

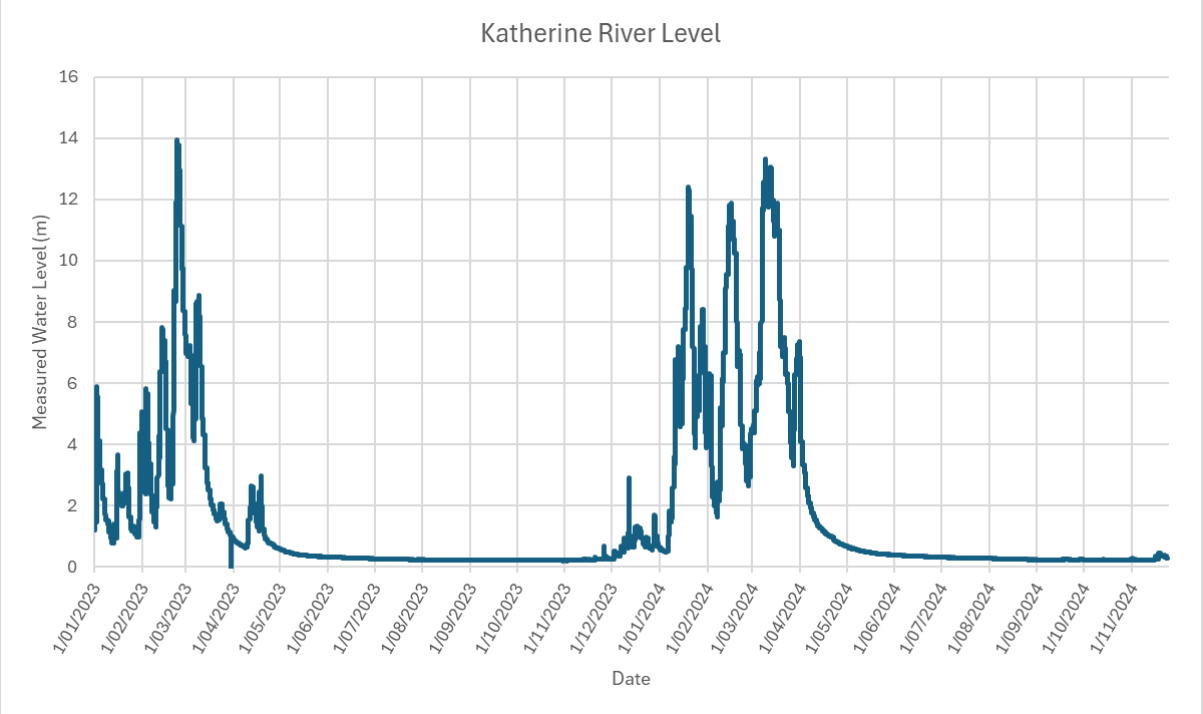

Figure 2 Measured Katherine River Level (m) January 2024 to 1 August 2024 (Katherine River Railway Bridge – G8140001)

Regionally, the relationship between climatic / rainfall conditions and PFAS concentrations is complex, with below average rainfall potentially increasing PFAS concentrations in Katherine River water, due to limited recharge and decreased dilution (Coffey, 2018a). Conversely, above average rainfall is likely to increase both groundwater recharge and groundwater levels in the Tindall Limestone Aquifer, causing an increase mobilisation of PFAS into groundwater from source areas. Outside of source areas, in

areas where rainfall can penetrate to the groundwater aquifer, above average rainfall could serve to dilute concentrations of PFAS in groundwater as clean water enters the system.

Monthly maximum mean temperatures were reported at the level or above the long-term average for the majority of the 2023-2024 monitoring period (refer to **Figure 3**).

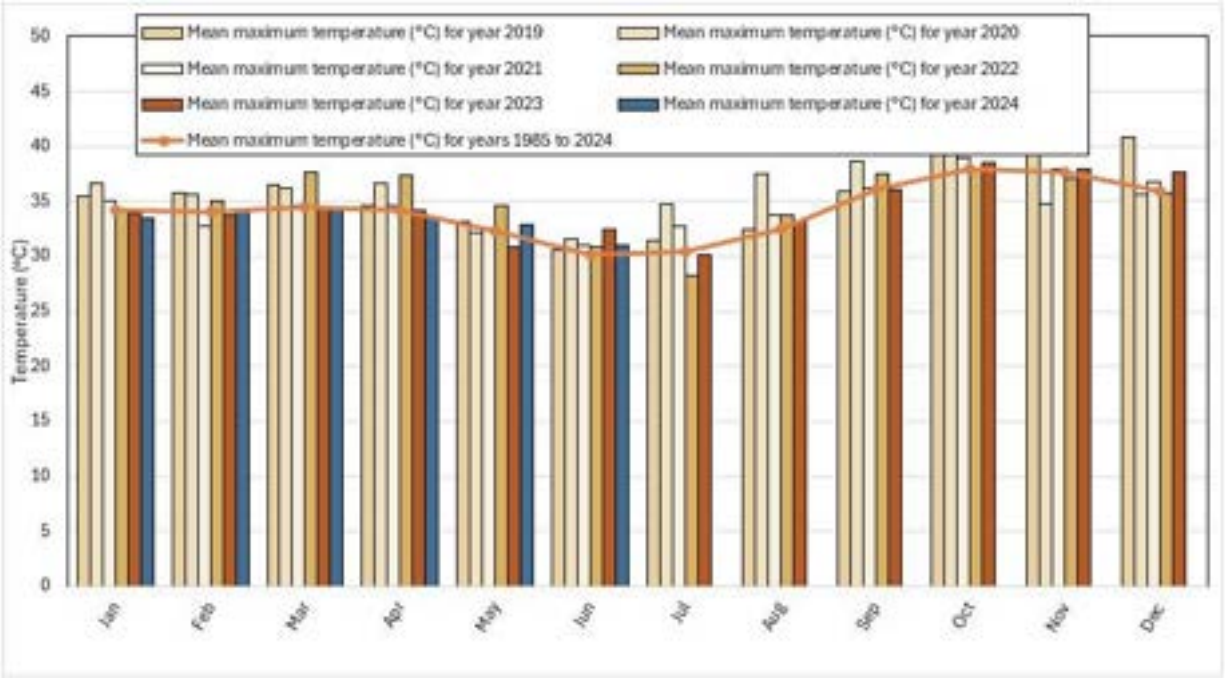

Figure 3 Measured Average Maximum Temperature for Katherine 1985 – 2024 (RAAF Base Tindal – Station 014932)

The combined climatic conditions are likely to result in changes to the hydrogeological system and manifest in outcomes relevant to the monitoring of PFAS in the Katherine region. Changes may include groundwater gradients, groundwater flow directions, and PFAS concentrations / mass flux in groundwater, creek and river systems. **Figure F6** in **Appendix A** present groundwater flow directions for the monitoring period during the July 2023 and April 2024 groundwater monitoring events. These results are discussed further in **Section 8.1** below. Seasonal changes in precipitation appear to impact PFAS concentrations in Katherine River with higher concentrations observed during the dry season when there is less dilution and a higher percentage of river recharge occurring from springs fed by the Tindall Limestone Aquifer. Lower concentrations are observed over the wet season when there is a higher percentage of river recharge occurring from surface water runoff throughout the greater Katherine watershed (i.e. greater dilution). No other climate influenced predictable patterns have emerged from data collected to date.

7.0 Monitoring data summary

7.1 Groundwater

7.1.1 Summary of Groundwater Data Presentation Sources

Groundwater data is graphically represented in **Appendix A** on the following figures:

- **Figure F1**: location of the groundwater management area, and concentration-based management areas, alongside key surface water features and PFAS sources
- **Figure F2**: off-base groundwater sample locations
- **Figure F3**: on-base groundwater sample locations
- **Figure F6**: interpreted groundwater flow direction and elevation contours for September 2023
- **Figures F7.1, F7.3, F7.5, F7.7, F7.9, F7.11, F7.13,** and **F7.15**: concentrations of PFOS+PFHxS for on-base and off-base groundwater and surface water locations
- **Figures F7.2, F7.4, F7.6, F7.8, F7.10, F7.12, F7.14,** and **F7.16**: concentrations of PFOA for on-base and off-base groundwater and surface water locations

The gauging and water quality parameter results obtained during the groundwater sampling work from the current monitoring period are provided in **Table T1** in **Appendix C.** Historic groundwater analytical results for the groundwater management area have been provided as **Table T2** in **Appendix C**. These results have been discussed in the following subsections.

7.1.2 Groundwater field parameters

During each sampling event, groundwater quality physiochemical field measurements were recorded ex-situ, after collecting groundwater samples. Parameters are presented in each of the respective factual reports in **Appendix C** and tabulated in **Table T1 (Appendix C)**.

The maximum and minimum recorded field parameters for the monitoring period are provided below in **Table 8.** Note that the maximum and minimum recorded field parameters for the period preceding the monitoring period have also been included in the table for comparison purposes.

From this comparison, overall, the groundwater quality field measurements for the monitoring period readings are consistent with historical data.

Table 8 Groundwater quality parameter ranges (min – max)

Event	No. of samples	DO (mg/L)	EC (µS/cm)	pH	Corrected redox (mV)	Temperature (°C)
May 2017 - April 2024 (Historical)	794	0.10 (MW244) - 6.97 (POT113) *Poor to oxygenated conditions*	2.63 (POT114) - 1,899 (MW306) *Freshwater to saline conditions*	3.85 (OTH114) - 9.41 (MW286) *Acidic to alkaline conditions*	24.9 (POT120) - 592.1 (MW262) *Oxidising conditions*	17.7 (POT120) - 44.9 (POT125)
July 2023 - October 2023 (Mid to late Dry Season)	45	0.75 (MW400, MW403) - 6.58 (OTH117) *Poor to oxygenated Conditions*	150.2 (MW732) - 2,249 (POT130) *Freshwater to saline conditions*	6.28 (MW231) - 8.20 (POT130) *Slightly acidic to alkaline conditions*	23.1 (MW732) - 350.3 (OTH115) *Oxidising conditions*	24.2 (MW110) - 37.3 (POT131)
November 2023 - January 2024 (Start of Wet Season)	52	0.77 (POT112) - 6.74 (POT198) *Poor to oxygenated Conditions*	281.9 (MW406) – 1,021 (POT113) *Freshwater to saline conditions*	4.36 (POT120) - 8.65 (MW126I) *Acidic to alkaline conditions*	61.0 (MW126I) - 349.5 (POT198) *Oxidising conditions*	26.1 (POT127) - 50.3 (OTH118)
February 2024 - April 2024 (End of Wet Season)	55	0.59 (POT112) - 5.92 (POT238) *Poor to oxygenated Conditions*	12.2 (OTH119) - 1,163 (OTH118) *Freshwater to saline conditions*	6.69 (POT124, POT125) – 8.00 (POT238) *Slightly acidic to alkaline conditions*	52.4 (POT127) - 334.7 (POT126) *Oxidising conditions*	22.5 (POT198) - 45.9 (POT131)

Note: DO = dissolved oxygen; EC = electrical conductivity.
Corrected redox means a temperature-based adjustment has been made to the field measurement of oxidation-reduction potential (ORP) to convert it to the standard hydrogen electrode (SHE) standard. A water with a positive corrected redox is considered to be an oxidising agent, a water with a negative corrected redox is considered to be a reducing agent.

7.1.3 Groundwater elevations

The standing water levels (SWL) were measured in the selected monitoring wells during the annual monitoring event to evaluate the groundwater elevations (m AHD) at on- and off-base locations. Groundwater gauging measurements are only collected during the annual monitoring events as samples collected during biannual, quarterly, or monthly events are collected from extraction bores where gauging is not feasible. The groundwater elevation ranges measured during the annual monitoring event are summarised in **Table 9** below with gauging data presented in **Table T1** (**Appendix C**).

Table 9 Summary of groundwater elevations

Monitoring event	No. wells gauged*	Min GWE (m AHD)	Max. GWE (m AHD)
Late dry season (September 2023)	17	91.24 (MW144)	129.92 (MW231)

Note: GWE = groundwater elevation. * Number of wells gauged may not equal number of groundwater wells shown in GWE figures due to reference elevation not available to convert metres below top of casing (mbTOC) to m AHD.

Interpreted potentiometric contours are presented on **Figure F6** (**Appendix A**) which were based on the calculated groundwater elevations measured during the 2023 late dry season (gauged between 18 and 20 September 2023). The data obtained from the monitoring period indicated that groundwater flow within the Management Area flows west towards Katherine River. This is consistent with historical gauging events.

Rainfall data for this period is summarised above in **Figure 1** (**Section 6.2**). Groundwater elevations are presented in **Table T1** in **Appendix C** Base-wide groundwater elevation data collected for presentation of potentiometric contours was collected during a separate gauging event documented in Dry Season Sampling Events Factual Report 2023 (AECOM, 2023) in **Appendix B**

In summary, the base and Katherine Township are situated above the unconfined Tindall Limestone Aquifer, where groundwater levels fluctuate seasonally by rising or falling in response to wet and dry seasons and is indicative of a highly transmissible aquifer. The cavernous nature of the Tindall Limestone Aquifer provides significant preferential flow pathways that are conduits for rainfall infiltration. Groundwater discharge also takes place through seepage into fluvial systems via fractures throughout the formation at depths of the surface water drainage (e.g. Katherine River Hot Springs). Groundwater expression areas have also been observed in Tindal Creek on base, where PFAS impacted groundwater expresses intermittently into surface water that flows directly into Tindal Creek. It is possible that as the dry season is established, this flow ceases / pools downgradient within the Creek and then vertically infiltrates towards the aquifer.

The flow directions provided in this OMR are consistent with those measured in the Detailed Site Investigation (DSI) (Coffey, 2018a) and throughout the 2021-2023 monitoring period completed as part of the 2023 Ongoing Monitoring Report (OMR) (AECOM, 2023).

The Tindall Limestone Aquifer provides persistent baseflow to the Katherine River. Based on groundwater modelling performed by NT Department of Environment and Natural Resources groundwater particles found in the Katherine River take between 3 months and 50 or more years to reach the river (Schult, 2016).

Seasonal fluctuations in groundwater levels within the Tindall Limestone Aquifer have been observed, suggesting aquifer recharge can be rapid. Based on the localised rainfall patterns that occur in the monitored area, the magnitude of the hydraulic gradient may vary spatially during the wet season. The understanding of the duration and spatial extent of hydraulic gradient fluctuations could be improved by collecting timeseries groundwater level data using dataloggers, during the wet season particularly at key locations which are not accessible during wet periods.

7.1.4 Groundwater PFAS analytical results

All groundwater analytical results for each monitoring event conducted in the current monitoring period are presented in **Table T2** (Appendix C). Groundwater monitoring locations are presented in **Figure F2** and **Figure F3** (**Appendix A**).

A summary of the groundwater monitoring analytical results for both on- and off-base locations for PFOS, PFOA and PFOS+PFHxS are summarised in **Table 10**. First-time detections of PFOS, PFOA and / or PFOS+PFHxS are summarised in **Table 11**. New exceedances of selected criteria are summarised in **Table 12**. New minimum concentrations are summarised in **Table 13** and new maximums concentrations are summarised in **Table 14.** Interpretation of results is provided in Section 8.0.

Table 10 Summary of PFOS, PFAS and PFOS+PFHxS concentrations in primary groundwater samples (August 2023 - April 2024)

Monitoring Event	No. of Sample Locations Analysed	Compound	Concentration Range for reporting period (>LOR) (µg/L)	No. of Sample Locations with Concentrations >LOR	No. of Samples Exceeding Drinking Water Guideline (HEPA, 2020)	No of Samples Exceeding Recreational Water Guidelines (HEPA, 2020)	No of Samples Exceeding Freshwater 99% Species Protection Guideline (HEPA, 2020) **
Dry Season (August - October 2023)	47 (On-base and Off-base)	PFOA	0.02 (MW107, OTH116) - 568 (MW231)	14	6	5	3
		PFOS+ PFHxS	0.01 (OTH111, POT124) - 4,230 (MW231)	30	23	11	N/A
		PFOS	0.01 (POT124, OTH111, MW132) to 1,860 (MW231)	30	N/A	N/A	30
Start of Wet Season (November 2023 - January 2024)	52 (Off-base)	PFOA	0.01 (POT113) - 14.4 (MW149)	3	2	1	0
		PFOS+ PFHxS	0.02 (POT112, POT113) - 620 (MW149)	13	5	3	N/A
		PFOS	0.02 - 372 (MW149)	13	N/A	N/A	13
End of Wet Season (February to April 2024)	58 (On-base and off-base)	PFOA	0.01 (POT113, OTH119) - 36.7 (MW149)	7	3	3	1
		PFOS+ PFHxS	0.01 - 1,580 (MW149)	2,829	12	3	N/A
		PFOS	0.01 - 1,050 (MW149)	28	N/A	N/A	28

** = only samples detect above LOR
N/A – Guideline not applicable

First-time detections of PFOA, PFOS and PFOS+PFHxS reported during the monitoring period are presented in **Table 11** below.

Table 11 Groundwater analytical results - first-time detections of PFOA, PFOS and PFOS+PFHxS

Monitoring event	Area	Location	Details
Dry Season (August - October 2023)	Nil	Nil	Nil
Start of Wet Season (November 2023 – January 2024)	Nil	Nil	Nil
End of Wet Season (February to April 2024)	Off-base - West of Katherine River	OTH119	0.08 µg/L (PFOS)
			0.12 µg/L (PFOS+PFHxS)
			0.01 µg/L (PFOA)

New exceedances of the adopted assessment criteria reported in groundwater during the reported monitoring period are presented in **Table 12** below.

Table 12 Groundwater analytical results - new exceedances of adopted assessment criteria for PFOA, PFOS and/or PFOS+PFHxS

Monitoring event	Area	Location	Details
Dry Season (August - October 2023)	Nil	Nil	Nil
Start of Wet Season (November 2023 - January 2024)	Nil	Nil	Nil
End of Wet Season (February - April 2024)	Off-base - West of Katherine River	OTH119	0.08 µg/L (PFOS)
			0.12 µg/L (PFOS+PFHxS)

During the monitoring period, the following new location-specific maximum concentrations per seasonal sampling event of PFOS, PFOS+PFHxS and PFOA were reported and are summarised in **Table 13** below.

Table 13 Groundwater results - new maximum concentrations of PFOA, PFOS and PFOS+PFHxS

Monitoring event	Area	Location	Analyte	Previous Maximum	New Maximum
Dry Season (August - October 2023)	On-base - Western base boundary	MW118	PFOS+PFHxS	2.16 µg/L	3.05 µg/L
			PFOS	1.5 µg/L	2.0 µg/L
			PFOA	0.07 µg/L	0.08 µg/L
	Off-base - Katherine	OTH116	PFOS	0.63 µg/L	0.67 µg/L

Monitoring event	Area	Location	Analyte	Previous Maximum	New Maximum
	East, centre of plume		PFOS+PFHxS	1.08 µg/L	1.11 µg/L
	On-base - MEOMS	MW244	PFOA	0.56 µg/L	0.76 µg/L
Start of Wet Season (November 2023 - January 2024)	Off-base - West of Katherine River	POT112	PFOS+PFHxS	0.08 µg/L	0.14 µg/L
			PFOS	0.04 µg/L	0.1 µg/L
End of Wet Season (February - April 2024)	Off-base - West of Katherine River	POT129	PFOS+PFHxS	0.01 µg/L	0.04 µg/L
			PFOS	0.01 µg/L	0.03 µg/L
	Off-base - West of Katherine River	POT121	PFOS+PFHxS	0.07 µg/L	0.08 µg/L
	Off-base - West of Katherine River	OTH119	PFOS	Below LOR (0.01 µg/L)	0.08 µg/L (repeat analysis reported 0.04 µg/L)
			PFOS+PFHxS	Below LOR (0.01 µg/L)	0.12 µg/L (repeat analysis reported 0.07 µg/L)
			PFOA	Below LOR (0.01 µg/L)	0.03 µg/L

During the current twelve-month monitoring period the following new location specific minimum concentrations per seasonal monitoring event of PFOS, PFOS+PFHxS and / or PFOA were reported and are presented in **Table 14**.

Table 14 Groundwater results - new minimum concentrations of PFOS, PFOS+PFHxS and / or PFOA

Monitoring event	Area	Location	Analyte	Previous Minimum	New Minimum
Dry Season (August - October 2023)	On-base - FTA	MW104	PFOS	4.2 µg/L	3.74 µg/L
			PFOS+PFHxS	8.84 µg/L	5.52 µg/L
			PFOA	0.3 µg/L	0.24 µg/L
Start of Wet Season (November 2023 - January 2024)	Nil	Nil	Nil	Nil	Nil
End of Wet Season (February - April 2024)	Nil	Nil	Nil	Nil	Nil

7.2 Surface water

7.2.1 Overview

The location of key surface water features and pathways, as well as PFAS sources, are presented on **Figure F1** (**Appendix A**) and surface water sample locations are shown on **Figure F4** (**Appendix A**).

Surface water features within the PFAS management area consist of the RAAF Base Tindal runway drainage lines, Tindal Creek, Katherine River and the Katherine Hot Springs. In addition, the water within the Katherine Town Council Community Swimming Pool is categorised as a surface water feature (although not a natural water way). All surface water (excluding the swimming pool) in the subject drains flow towards and eventually discharge into the Katherine River. There are also locations where surface water interacts with groundwater through springs, and where surface water infiltrates into groundwater via sink holes within the Tindall Limestone formation.

Surface water sampling was conducted on-and off-base during the monitoring period as presented in **Table 15**.

Table 15 Surface water sampling schedule July 2023 – April 2024

Monitoring Event	Locations
July 2023 - October 2023 (Mid to late Dry Season)	Katherine River, Katherine Hot Springs, and Katherine Town Council Swimming Pool
November 2023 - January 2024 (Start of Wet Season)	On-base, Katherine River, Katherine Hot Springs, Tindal Creek and Katherine Town Council Swimming Pool
February - April 2024 (End of Wet Season)	On-base, Tindal Creek, Katherine River, Katherine Hot Springs

7.2.2 Surface water field parameters

Measurements of surface water quality parameters were recorded at the time of collecting samples. The recorded water quality parameters are presented in each of the respective factual reports in **Appendix B** and results are provided in full as **Table T3** (**Appendix C**).

The readings for the monitoring period are also summarised below in **Table 16**. These results are considered consistent with previous investigations.

From observations at the three surface water locations which were monitored quarterly (OTH008, SW108, and SW153), it is noted that surface water conditions varied greatly based on the timing of the monitoring event. Average dissolved oxygen (DO), electrical conductivity (EC), pH, temperature and reduction / oxidation (redox) have been recorded on a quarterly basis for these three locations and presented in **Table 16** below. Additionally, OTH008, which is a public swimming pool with chemically treated water, does not have field parameter readings that are reflective of a natural surface water system.

Table 16 Surface water quality parameters ranges (min-max)

Event	No. of samples	DO (mg/L)	EC (µS/cm)	pH	Corrected Redox Potential (mV)	Temperature (°C)
May 2017 - April 2024 (Historical)	116	0.53 (SW153) - 6.61 (SW108) *Poor to well oxygenated conditions*	-42.4* (SW161) - 2,843 (SW108) *Freshwater to brackish conditions*	4.47 (SW153) - 9.13 (SW161) *Neutral to alkaline conditions*	26.2 (POT120) - 705 (SW153) *Oxidising conditions*	21.2 (SW100) - 35.1 (SW049)
July - October 2023 (Mid to late Dry Season)	9	2.91 (SW110) - 5.3 (SW108) *oxygenated Conditions*	6.67 (SW153) - 785 (SW153) *Freshwater conditions*	6.07 (SW108) - 7.84 (SW161) *Mildly acidic to mildly alkaline conditions*	297.6 (SW161) - 431.5 (SW100) *Oxidising conditions*	23.4 (SW108) - 30.9 (SW161)
November 2023 - January 2024 (Start of Wet Season)	8	2.44 (SW021) - 6.06 (SW108) *Oxygenated Conditions*	42.9 (SW108) - 273.2 (SW140) *Freshwater conditions*	7.01 (SW021) - 7.9 (SW016) *Neutral to mildly alkaline conditions*	220.7 (SW049) - 324.6 (SW108) *Oxidising conditions*	27.9 (SW108) - 31.9 (SW140)
February - April 2024 (End of Wet Season)	11	2.87 (SW161) - 5.3 (SW108) *Oxygenated Conditions*	20.5 (SW110) - 825 (SW153) *Freshwater conditions*	4.47 (SW153) - 8.17 (SW140) *Acidic to mildly alkaline conditions*	214.3 (SW049) - 309.3 (SW153) *Oxidising conditions*	23.3 (SW108) - 35.1 (SW049)

Water quality parameters presented above have excluded OTH008 (Katherine Swimming Pool) measurements as they are not reflective of natural surface water conditions.
Note: DO = dissolved oxygen; EC = electrical conductivity.
* Erroneous reading

7.2.3 Surface water PFAS analytical results

All surface water analytical results for all monitoring events are presented in **Table T4** (Appendix C). Monitoring locations are presented in **Figure F4 (Appendix A**) and PFOS+PFHxS concentration maps are presented in **Figures F8.1, F8.3, F8.5, F8.7, F8.9** and **F8.11 ((Appendix A).** Surface water concentration maps for PFOA are presented in **Figures F8.2, F8.4, F8.6, F8.8, F8.10** and **F8.12 ((Appendix A)**.

Surface water results for all sampling events within the monitoring period are summarised in **Table 17**. New maximum PFAS concentrations are summarised in **Table 18**. No new minimum PFAS concentrations were recorded over the monitoring period. Interpretation of results is provided in Section 8.0.

Table 17 Summary of PFOS, PFOA and PFOS+PFHxS concentrations in primary surface water samples

Monitoring Event	No. of Sample Locations Analysed	Compound	Concentration Range (µg/L)	No. of Samples Locations with Concentrations >LOR	No. of Samples Exceeding Drinking Water Guideline (HEPA, 2020)	No. of Samples exceeding Recreational Water Guideline (HEPA, 2020)	No. of Samples exceeding Freshwater 99% Species Protection Guideline (HEPA, 2020)**
July 2023 - October 2023 (Mid to late Dry Season)	10	PFOS	<0.01 (SW161 - in Katherine River up-gradient of Katherine) to 0.14 (SW108 and SW100 in Katherine River)	9	N/A	N/A	9
		PFOA	<0.01 (All locations)	1	0	0	N/A
		PFOS+PFHxS	<0.01 (SW161) - 0.24 (SW100)	9	6	0	N/A
November 2023 - January 2024 (Start of Wet Season)	9	PFOS	<0.01 (SW108, SW153 in Katherine River) - 3.67 (SW140 - on-base)	7	N/A	N/A	7
		PFOA	<0.01 - 0.7 (SW140)	3	1	0	N/A
		PFOS+PFHxS	<0.01 (SW108, SW153) - 4.1 (SW140)	7	6	2	N/A
March 2024 - April 2024 (End of Wet Season)	11	PFOS	<0.01 - 3.07 (SW140)	6	N/A	N/A	6
		PFOA	<0.01 - 0.16 (SW140)	3	0	0	N/A
		PFOS+PFHxS	<0.01 - 3.95 (SW140)	6	5	1	N/A

** = only results detected above guidelines

N/A – not applicable – no guideline value available

There were no first-time detections or new exceedances of the adopted assessment criteria reported in surface water during the current two-year monitoring period. In addition, there were no new location specific minimum concentrations reported in surface water during the current monitoring period.

During the monitoring period, the following new location-specific maximum concentrations per seasonal sampling event of PFOS, PFOS+PFHxS and / or PFOA were reported and are summarised in **Table 18** below.

Table 18 Surface water results - new maximum concentrations of PFOA, PFOS and PFOS+PFHxS

Monitoring event	Area	Location	Analyte	Previous Maximum	New Maximum
July 2023 - October 2023 (Mid to late Dry Season)	NA	Nil	Nil	Nil	Nil
November 2023 - January 2024 (Start of Wet Season)	Tindal Creek (off base)	SW021 (Tindal Creek, down-gradient of the base boundary)	PFOS	1.10 µg/L	1.25 µg/L
			PFOA	0.04 µg/L	0.24 µg/L
	Katherine River (Galloping Jacks)	SW151 (Katherine Creek - down-gradient of the Katherine and Tindal Creek confluence)	PFOS+PFHxS	0.024 µg/L	0.25 µg/L
February 2023 - April 2024 (End of Wet Season)	NA	Nil	Nil	Nil	Nil

7.3 Aquatic biota

7.3.1 Overview

Aquatic biota monitoring within Katherine River is conducted annually at the end of the dry season (September/October). Aquatic biota is monitored to track changes in PFAS concentrations in fish and crustaceans within Katherine River over time and to inform the Northern Territory Department of Health (NT Health) for keep their health advisory up to date. Aquatic biota samples are collected by NT Fisheries staff utilising NT Fisheries equipment.

7.3.2 Aquatic biota analytic results

Available aquatic biota analytical results are presented in **Table T5** (**Appendix C**) and monitoring locations are presented in **Figure F5** (**Appendix A**). Summary of PFOS, PFOS+PFHxS and PFOA analytical results for the monitoring period are presented in **Table 19**. Interpretation of results is provided in Section 8.0.

Table 19 Summary of PFOS, PFOA and PFOS+PFHxS biota sampling

Date	No. of Samples Analysed	Compound	Sample Concentration Range (mg/kg)	No. of Sample Locations with Concentrations >LOR	No. of Samples exceeding 2-6 years* Finfish (all species) (FSANZ, 2017)	No. of Samples exceeding 2-6 years* crustaceans (all species) (FSANZ, 2017)
End of Dry Season (October 2023)						
Galloping Jacks Boat Ramp - BIO078						
23 October 2023	22 (19 *fin fish and 3 crustaceans)*	PFOS	0.016 (BIOAFA483) - 0.189 (BIOAFA481)	22	12 of 19 fin fish samples	3 of 3 crustacean samples
		PFOA	<0.001	0	0	0
		PFOS+PFHxS	0.017 (BIOAFA483) - 0.189 (BIOAFA481)	22	12 of 19 fin fish samples	3 of 3 crustacean samples
Stuart Highway Boat Ramp - BIO088						
23 October 2023	19 (16 *fin fish and 3 crustaceans)*	PFOS	0.013 (BIOAFA444, BIOAFA461) - 0.142 ((BIOAFA459)	19	16 of 16 fin fish samples	2 of 3 crustacean samples
		PFOA	<0.01	0	0	0
		PFOS+PFHxS	0.013 (BIOAFA444, BIOAFA461) - 0.142 (BIOAFA459)	19	16 of 16 fin fish samples	2 of 3 crustacean samples

* Median consumption by children 2-6 years old

8.0 Interpretive analysis

8.1 Hydrogeology

The SWLs were measured in groundwater monitoring wells and converted to estimated groundwater elevations (in mAHD). Depth to groundwater measurements are presented in **Table T1** (**Appendix C**) and the inferred potentiometric contours for the monitoring wells for the September 2023 monitoring event are presented in **Figure F6** (**Appendix A**). Base-wide groundwater elevation data collected for presentation of potentiometric contours was collected during a separate gauging event documented in Dry Season Sampling Events Factual Report 2023 (AECOM, 2023) in **Appendix B**. Further groundwater elevation discussion can be found in **Section 7.1.3.**

The inferred groundwater flow direction during the September 2023 monitoring event (the most recent in which groundwater levels were recorded) was to the west, which is consistent with historical observations / measurements (Coffey, 2018a). Recorded groundwater levels are presented in Table 20

Table 20 Recorded groundwater elevations 2021 - 2023

Year of sampling event	Recorded groundwater range (mAHD)
2021	96.24 to 137.29
2022	92.32 to 130.61
2023	91.24 to 129.92

The range in elevations recorded in 2023 are comparable to that recorded during the October 2022 event however, elevations were lower than the ranges observed during the October 2021 and April 2021 monitoring events.

Reduced rainfall infiltration through the dry season typically results in groundwater elevation decreasing by up to around 8 metres from the end of the wet season to the end of the dry season. The water level reduction does not change the overall groundwater flow direction but may alter the rate of PFAS migration due to fluctuating hydraulic gradients. These can change sporadically, influenced by rainfall patterns, which can be highly localised within the monitored area.

Further, the mass discharge of PFAS from source areas is expected to be higher during the wet season, when the water table rises and mobilises PFAS from the dry season vadose zone. Further investigation is required to understand how groundwater level in the source areas respond to rainfall.

Historical groundwater levels from registered bores do not show long-term rising or falling trends, indicative of hydraulic response in a very transmissive aquifer. The major springs on the river are the discharge points for these systems (Coffey, 2018a). Groundwater expression areas have also been observed in Tindal Creek on base, where PFAS impacted groundwater expresses intermittently into surface water that flows directly into Tindal Creek.

8.2 Groundwater first-time detections, new exceedances and new maximum concentrations

Groundwater concentrations for PFOA and PFOS+PFHxS, compared to assessment criteria, are provided in figure series **F7** (**Appendix A**) and presented in full on **Table T2** (**Appendix C**). PFAS concentrations were similar to those previously reported (historical) since the 2018 DSI (Coffey, 2018a).

The highest PFAS concentrations reported in the monitoring period were detected at a monitoring well located within the former FTA (MW231), which had a sum of PFOS+PFHxS concentration of 4,170 µg/L during the September 2023 sampling event, and where remediation actions are still ongoing.

The highest PFOS+PFHXS concentrations reported in the monitoring period for Off-base locations were detected at:

- MW400 (1.76 µg/L), located in Katherine East, in September 2023. This sampling location is an impacted well located in the centre of the plume off-base.

- OTH116 (1.11 µg/L), new exceedance located in Katherine East at the Katherine Aquatic Centre in September 2023. This sampling location is an impacted well located in the centre of the plume off-base.

First-time detections, new exceedances and maximums of PFOA and PFOS+PFHxS reported during the monitoring period included:

- A first-time detection and new exceedance of the PFOS+PFHxS drinking water guideline at off-base location OTH119 (located in the Cossack, west area West of Katherine River) in February 2024 (mid wet season) with a reported concentration of 0.12 µg/L. Subsequent monitoring has shown concentrations lower than those recorded in February 2024 and below drinking water guidelines, although they remain above the laboratory LOR.
- A first-time detection was reported for PFOA at off-base location OTH119 during the March 2024 (late wet season) monitoring event, with a concentration of 0.01 µg/L. The following monitoring event in April 2024 reported a new maximum concentration of 0.03 µg/L, which remains below drinking water guidelines.
- A new maximum concentration of 3.05 µg/L for PFOS+PFHxS was reported at MW118 (located on-base at the western boundary) in September 2023 (late dry season). This new maximum concentration is within an order of magnitude of the previous maximum high concentration of 2.16 µg/L for PFOS+PFHxS recorded in November 2017 (early wet season), and not outside the expected range of variability for this location. Both results exceed recreational water guidelines.
- A new maximum concentration was reported at OTH116 (located off-base in Katherine East) in September 2023 (late dry season), with a reported concentration of 1.11 µg/L for PFOS+PFHxS. The new maximum concentration is within an order of magnitude of the previous maximum concentration of 1.08 µg/L for PFOS+PFHxS recorded in April 2020 (late wet season). Given that this location has only two preceding sampling events and is situated near the leading edge of the plume, further monitoring is required to evaluate the significance of this new maximum detection.
- A new maximum concentration was reported at POT112 (located in the Cossack, area west of Katherine River) in January 2024 (mid wet season), with a reported concentration of 0.14 µg/L for PFOS+PFHxS. The new maximum concentration is within an order of magnitude of the previous high concentration 0.08 µg/L collected in August 2023 (mid dry season). Subsequent monitoring has reported concentrations within the historical range and below the drinking guideline value, except for the February 2024 event where results were equal to the drinking water guideline value.
- A new maximum concentration was reported at POT129, located in the Cossack (area west of Katherine River) in February 2024 (mid wet season), with a reported concentration of 0.04 µg/L for PFOS+PFHxS. Both subsequent monitoring events have reported lower concentrations above the LOR at this location. Results are below the drinking water guidelines.
- A new maximum concentration was reported at POT121, located in the Cossack (area west of Katherine River) in April 2024 (late wet season), with a reported concentration of 0.08 µg/L for PFOS+PFHxS. The new maximum concentration is within an order of magnitude of the previous maximum concentration of 0.07 µg/L for PFOS+PFHxS recorded in March 2023 (late wet season) but is a new exceedance of the drinking water guideline value.
- A new maximum concentration was reported at MW244 (located at on-base source area MEOMS) in September 2023 (late dry season) with a reported concentration of 0.76 µg/L for PFOA. The new maximum concentration is within an order of magnitude of the previous maximum concentration of 0.11 µg/L for PFOA recorded in November 2017 (early wet season). Both results exceed recreational water guidelines range.

There have been no first-time detections or new exceedances reported at the southernmost sentinel wells located off-base (MW403, POT111 and MW144) indicating that the plume extent in the southern portion has not expanded to the sentinel wells. There has been no data collected for the northern sentinel well (POT119) since April 2021 and therefore the extent of northern migration of plume is unknown.

The spatial and magnitude concentration trends indicate that the PFAS plume may be migrating westward towards the Cossack area, particularly at the end of the wet season. The mechanism for this

observed westward expansion is not currently understood and may be associated with localised groundwater flow dynamics, preferential pathways within the aquifer, surface water levels and flows in Katherine River, and/or groundwater extraction in the area.

8.3 Groundwater – temporal trends

8.3.1 Approach to trend analysis

A summary of PFOS, PFOS+PFHxS and PFOA concentrations (includes all current and historical data) for seven sub-regions within the Management Area is specified in **Table 21** (below) and trend analysis results are discussed and presented in tabular form **Section 8.3.3** to **Section 8.3.9**. Temporal graphs and Mann-Kendall statistical trend analysis for each of the seven sub- regions are presented in **Appendix D** and **Appendix E**, respectively.

The laboratory LOR for PFOS, PFOS+PFHxS, and PFOA concentrations is 0.01 µg/L, indicating that concentrations below this threshold are not quantifiable by the laboratory methods used. Locations that had insufficient data (i.e. less than four data points) or concentrations that were reported below the LOR are labelled with “not completed (nc)” next to location ID. Cells that are highlighted pink are concentrations from alternative locations listed in the relevant SAQP.

Locations utilising alternative wells are included in **Appendix E** but are not considered for reported trends. Limitations of Mann-Kendall analysis is discussed in **Section 8.3.2** below, with particular regard for the impacts that seasonality has on the appropriateness of adopting Mann Kendall to undertake a statistical trend analysis.

Table 21 Summary of sub-regions for the groundwater monitoring area

Sub-region within the Management Area	Groundwater Monitoring Well IDs
On-base cross/upgradient	MW734 (RN029430), MW132[1], OTH111, OTH112, MW403
On-base FTA	MW104, MW231, MW235
On-base minor source areas (MEOMS, Fuel Farm 1 and Fuel Farm 2)	MW244, MW278, MW285
On-base FSA	MW127, MW129, MW149
On-base central and boundary plume and Off-base central	MW107, MW110, MW117, MW118[1], MW134, MW732[1] MW135, MW400, POT111
Off-base at the Katherine Township	MW137, MW138, OTH116[1], MW140, MW142, MW144, OTH115, POT119, OTH113
Off-base and west of Katherine River	OTH114, OTH117, OTH118, OTH119, POT112, POT113, POT114, POT120, POT121, POT122, POT124, POT125, POT126, POT127, POT128, POT129, POT130, POT131, POT198, POT201

[1] Alternative location sampled in lieu of primary location being unable to sample – cells highlighted red in Appendix E – Statistical Analysis if alternative location concentration is used.

The groundwater temporal graphs only include locations which consistently report greater than LOR for respective analytes. Where sample results were less than the LOR, half the LOR was adopted for the graph. **Table 22** below summarises the wells selected for the temporal graphs per sub-region.

Table 22 Summary of locations selected for groundwater temporal plots

Management Area	Graph ID	Analyte	Groundwater Monitoring Well IDs
On-base cross/upgradient	G1	PFOA	MW132[1], MW734, OTH111, OTH112
	G2	PFOS+PFHxS	
On-base FTA	G3	PFOA	MW104, MW231

Management Area	Graph ID	Analyte	Groundwater Monitoring Well IDs
	G4	PFOS+PFHxS	
On-base minor source areas (MEOMS, Fuel Farm 1 and Fuel Farm 2)	G5	PFOA	MW244, MW278, MW285
	G6	PFOS+PFHxS	
On-base FSA	G7	PFOA	MW127, MW129, MW149
	G8	PFOS+PFHxS	
On-base central and boundary plume and Off-Base central	G9	PFOA	On-base MW107, MW110, MW117, MW118[1]
	G10	PFOS+PFHxS	
	G11	PFOA	Off-base MW134, MW732[1], MW135, MW400
	G12	PFOS+PFHxS	
Off-base in Katherine	G13	PFOA	MW137, MW138, MW140, OTH116
	G14	PFOS+PFHxS	MW137, MW138, MW140, MW142, OTH113, OTH115, OTH116[1]
Off-base and west of Katherine River	G15	PFOA	POT113, OTH114, OTH119
	G16a, G16b and G16c	PFOS+PFHxS	OTH114, OTH117, OTH118, OTH119, POT112, POT113, POT114, POT120, POT121, POT122, POT124, POT128, POT129

[1] Alternative location sampled in lieu of primary location

8.3.2 Limitations of Mann-Kendall analysis

Statistical trend analysis was undertaken for select sub-regions of the Management Area. However, due to seasonal variation of precipitation, corresponding fluctuations in groundwater levels, and seasonally influenced variance in PFAS concentrations, there is currently insufficient data to reliably identify statistical trends for all locations. This is particularly noticeable when examining temporal graphs (**Appendix D**) where seasonal variance was present at several locations.

Additionally, Mann-Kendall statistical analysis has limited capability to accurately identify temporal changes when concentrations are close to the LOR. Mann-Kendall analysis and / or data is included in **Appendix E** for all locations for reference purposes, however, identification and discussion of statistically derived trends has not been included in discussions below.

Further monitoring is required before statistical trends in seasonal variability can be effectively assessed. Currently, the OMP prescribes a single monitoring event to be conducted at the end of the dry season at all monitoring locations (excluding Cossack bores, which are scheduled more frequently). As groundwater samples have only been collected at the end of the dry season there is insufficient data available to evaluate temporal trends between and within wet and dry season conditions.

Tracking of changes in the nature and location of PFAS throughout the management area will become more relevant following the recent remedial activities. Data from multiple monitoring events after remediation actions are completed will be required before meaningful data trends can be discerned.

8.3.3 On-base cross and upgradient trends

Monitoring locations MW734 (northern perimeter), MW403 (southern perimeter), OTH111 (across- and up- gradient) and OTH112 (up-gradient of sources) represented locations on-base cross gradient or upgradient of the on-base PFAS source areas. Monitoring location MW734 developed a blockage and was not able to be sampled after the November 2020 monitoring event. Contingency well MW132 has been sampled as a replacement since October 2021.

Historical concentrations of PFOA in the on-base cross and upgradient locations are shown graphically in **Graph G1** (**Appendix D**). Reported PFOA concentrations within this region of the Management Area remain below the laboratory LOR and therefore there is no observable trend to discuss.

Historical concentrations of PFOS+PFHxS in the subject on-base cross and upgradient locations are shown graphically in **Graph G2 (Appendix D**) and the PFOS and PFOS+PFHxS concentrations for the current monitoring period are summarised in **Table 23** below, and presented in full as **Table T2** (**Appendix C**).

While no discernible trends are identifiable from temporal graphs **Graph G1** and **G2** for any on-base cross and upgradient locations, the consistency in low to non-detectable concentrations indicate that the northern, eastern and southern extents of the plume have not spread, hence the northern, eastern and southern extent of the Management Area remains unchanged.

Table 23 Groundwater summary results - On-base cross and upgradient (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR July 2023 - April 2024 Monitoring Period)		
			Dry Season (July 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season Dec (February - April 2024)
MW132 (alt. for MW734)	PFOS	<LOR	0.01	n/s	n/s
	PFOS+PFHxS	<LOR	0.03	n/s	n/s
	PFOA	<LOR	<LOR	n/s	n/s
MW403	PFOS	<LOR - 0.02	<LOR	n/s	n/s
	PFOS+PFHxS	<LOR - 0.02	<LOR	n/s	n/s
	PFOA	<LOR	<LOR	n/s	n/s
OTH111 (RN287782)	PFOS	<LOR - 0.02	0.01	n/s	n/s
	PFOS+PFHxS	<LOR - 0.02	0.01	n/s	n/s
	PFOA	<LOR	<LOR	n/s	n/s
OTH112	PFOS	<LOR - 0.01	<LOR	n/s	n/s
	PFOS+PFHxS	<LOR - 0.01	<LOR	n/s	n/s
	PFOA	<LOR	<LOR	n/s	n/s

n/s = not sampled

[1] historical data range since monitoring commenced in 2017 prior to current OMR monitoring period.

In periods with multiple sampling events, the maximum value for the period is presented.

8.3.4 On-base FTA trend analysis

The FTA is one of the two key on-base source areas for PFAS in groundwater and is monitored through MW235, MW231 and MW104. Monitoring location MW235 was decommissioned prior to remediation works at the FTA. As mentioned in **Section 6.1.2**, this source area is listed as a priority for action under the PMAP with soil remediation currently being implemented and groundwater treatment ongoing. Monitoring wells MW231 and MW104 were sampled during the current annual monitoring period in July 2023 to April 2024.

Historical concentrations of PFOA and PFOS+PFHxS in these base FTA locations are shown graphically in **Graph G3** and **G4** (**Appendix D)** respectively. PFOS, PFOS+PFHxS and PFOA results are summarised in **Table 24**, and presented in full as **Table T2,** (**Appendix C**). All monitoring locations reported PFOS+PFHxS and PFOA concentrations above LOR for the monitoring period.

Table 24 Groundwater summary results - On-base FTA (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (August 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season Dec (February 2024 - April 2024)
MW104	PFOS	4.2 - 2,200	3.74	n/s	n/s
	PFOS+PFHxS	8.84 - 2,990	5.52	n/s	n/s
	PFOA	0.23 - 180	0.24	n/s	n/s
MW231	PFOS	79.8 - 3,160	1,860	n/s	n/s
	PFOS+PFHxS	139 - 6,160	4,230	n/s	n/s
	PFOA	11.4 - 672	568	n/s	n/s

(*) Concentration of duplicate sample.

n/s = not sampled.

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.

Green shading indicates one or more results below the historical range.

In periods with multiple sampling events, the maximum value for the period is presented.

At MW104, approximately 115 m down-gradient of the FTA, in September 2023 (late dry season), concentrations were recorded at 5.52 µg/L for PFOS+PFHxS and 3.74 µg/L for PFOS, which are below the historical minimum concentrations at this location for the second year in a row. It is noted that concentrations reported during the late dry seasons have steadily decreased since 2022 and may be attributed to soil remediation works conducted at the FTA since 2022. Additionally, it is noted that high mobility short chain PFAS compounds such as Perfluorohexanoic acid (PFHxA), Perfluorobutanesulfonic acid (PFBS), PFHxS, and Perfluoroheptanoic acid (PFHpA), have reported lower than historical concentrations at MW104 since soil remediation at the FTA began in 2022. The absence of short chain PFAS in groundwater can be considered an early indicator of plume response to the remedial activities that have been occurring at the FTA.

At MW231 in September 2023, concentrations exceeded guidelines but were within historical ranges for PFOS, PFOS+PFHxS and PFOA. Since the previous two monitoring events in October 2021 and 2022, there has been an increase in PFOS+PFHxS concentrations. MW231 is directly downgradient from the FTA evaporation ponds. These ponds and surrounding soils are currently being remediated. As such, higher PFAS concentrations would be expected in MW231 during periods with high recorded groundwater levels prior to remedial actions. Since the September 2023 sampling event, the remaining evaporation ponds have been removed and soils both beneath and adjacent to the ponds have been excavated and treated, which consequently, should reduce the potential for PFAS mobilisation in groundwater in this area.

A review of temporal trend graphs **G3** and **G4** (**Appendix D**) indicates there is a correlation between late wet season and higher recorded PFAS concentrations, with the highest concentrations associated with late wet season conditions and low concentrations related to dry season or early wet season conditions.

In summary, this data indicates the significance of seasonal influence on the oscillation of PFAS concentrations in groundwater, with the amplitude of concentration change directly proportional to the extent of groundwater intrusion / soil saturation and hence mobilisation of residual PFAS. Additionally, reductions in PFAS concentrations, particularly in concentrations of short chain PFAS compounds, may be an early indicator that remedial actions conducted since 2022 are having an impact on groundwater directly downgradient of the FTA.

To update contamination conditions and discern if current soil remediation has had a consequential improvement in groundwater conditions at and within the FTA source area, further assessment works are required following the completion of remediation works outlined in **Section 6.1.2**.

8.3.5 On-base minor source areas (MEOMS, Fuel Farm 1 and Fuel Farm 2) trend analysis

The on-base minor source areas include the MEOMS (MW244), Fuel Farm 1 (MW278) and Fuel Farm 2 (MW285). All three monitoring wells were sampled during the annual monitoring events in September 2023.

Historical concentrations of PFOA and PFOS+PFHxS in the vicinity of the on-base MEOMS, Fuel Farm 1, and Fuel Farm 2 areas are respectively shown graphically in **Graph G5** and **G6** (**Appendix D**). PFOS, PFOS+PFHxS and PFOA results are summarised in **Table 25**, and presented in full as **Table T2** (**Appendix C**).

No discernible trends are identifiable for MW244, MW278 and MW285 from temporal graphs **Graph G5** and **G6** (**Appendix D**) for any of the on-base minor source areas. Additional wet season data applied to a statistical analysis that accounts for seasonality would likely be needed to understand the PFAS concentration trends at these on-base minor source areas.

Table 25 Groundwater summary results– on-base MEOMS, Fuel Farm 1 and Fuel Farm 2 (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (August to October 2023)	Early Wet Season (November 2023 to January 2024)	Late Wet Season Dec (February to April 2024)
MW244 (MEOMS)	PFOS	3.3 - 14	11.3	n/s	n/s
	PFOS+PFHxS	4.12 - 20.6	15.3	n/s	n/s
	PFOA	0.11 - 0.56	0.76	n/s	n/s
MW278 (Fuel Farm 1)	PFOS	2.7 - 15	7.14	n/s	n/s
	PFOS+PFHxS	8.74 - 26.1	13.8	n/s	n/s
	PFOA	0.11 - 0.35	0.3	n/s	n/s
MW285 (Fuel Farm 2)	PFOS	0.14 - 0.77	0.42	n/s	n/s
	PFOS+PFHxS	0.32 - 1.03	0.65	n/s	n/s
	PFOA	<LOR - 0.02	<LOR	n/s	n/s

n/s = not sampled.

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.

Orange shading indicates one or more results above the historical range.

In periods with multiple sampling events, the maximum value for the period is presented.

Concentrations of PFOA at MEOMS monitoring location MW244 in September 2023 (late dry season) were reported to be above historical ranges, however, still within the same order of magnitude to historical ranges.

MW278 and MW285 reported PFOS+PFHxS and PFOA concentrations within the historical concentrations range during the monitoring period.

A review of temporal trend graphs **G5** and **G6** (**Appendix D**) indicates there is less apparent seasonal variation at these locations, however, data has not been collected regularly across both wet and dry season conditions to determine if late wet and late dry season conditions are significantly different with periodic oscillation. While the MEOMS, Fuel Farm 1 and Fuel Farm 2 continue to contribute PFAS to the groundwater plume, the contribution from these locations is minor when compared to PFAS contribution to groundwater from primary source areas FTA and FSA.

8.3.6 On-base FSA trend analysis

The FSA is the second key source area and is located within the central part of base. All three monitoring wells (MW127, MW129, MW149) were sampled during the annual monitoring event in September 2023.

Historical concentrations of PFOA and PFOS+PFHxS in the vicinity of FSA are shown graphically in **Graph G7** and **G8** (**Appendix D**). PFOS, PFOS+PFHxS and PFOA results are summarised in **Table 26**, and presented in full as **Table T2** (**Appendix C**).

Temporal graphs for these locations are presented in **Graph G7** and **G8 (Appendix D)**. No discernible trends are identified in the temporal graphs, while MW149 increased in PFOS+PFHxS concentrations between 2020 and 2022, however, data from this location is limited and reported increases in PFAS concentrations may be temporary. Additional wet season data applied to a statistical analysis that accounts for seasonality would likely be needed to understand the PFAS concentration trends at the FSA.

Table 26 Groundwater summary results - On-base FSA (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (August 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season (February 2024 - April 2024)
MW127	PFOS	1.1 - 6.1	2.71	n/s	n/s
	PFOS+PFHxS	1.53 - 8.8	3.71	n/s	n/s
	PFOA	0.05 - 0.3	0.09	n/s	n/s
MW129	PFOS	32.2 - 230	88	n/s	n/s
	PFOS+PFHxS	53.7 - 380	124	n/s	n/s
	PFOA	1.95 - 158.8	5.37	n/s	n/s
MW149	PFOS	37.8 - 2,030	365*	372	1,310*
	PFOS+PFHxS	51.4 - 3,060	575*	620	2,000*
	PFOA	1.81 - 68	13.8*	14.4	47.2*

n/s = not sampled.

(*) Concentration of duplicate sample.

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.

In periods with multiple sampling events, the maximum value for the period is presented.

All results obtained during the current monitoring period for PFOS, PFOS+PFHxS and PFOA were above the LOR for the monitoring period and were within or below the ranges of the historical data set, with minor fluctuation in the concentrations detected between sampling rounds.

PFAS concentrations in groundwater at the FSA remain similar to conditions described during the 2017 investigative period. A review of temporal trend graphs **G7** and **G8** (**Appendix D**) indicates there may be a correlation between late wet season conditions and higher recorded PFAS concentrations, however, data has not been regularly collected across both wet and dry season conditions to determine if such a correlation exists.

Monitoring locations MW129 and MW149 are placed within and adjacent to the FSA hardstand area, respectively, and upgradient of the FSA remediation area. The recorded concentrations from these locations have not changed significantly since investigations began in 2017 (2020 for MW149). FSA infrastructure appears to continue to contribute to PFAS migration into groundwater in the FSA area, and additional measures to reduce PFAS mobilisation from FSA infrastructure should be explored.

Monitoring location MW127, located approximately 200 metres downgradient of the FSA soil remediation area has not shown any reductions in PFAS concentrations compared to the historical monitoring data from this location. The distance of MW127 from the soil remediation area may be a contributing factor. Future groundwater monitoring events conducted at the FSA will be used to track any measurable decreases in PFAS concentrations in groundwater post soil remediation works.

8.3.7 Base boundary and central plume trend analysis

The central portion of the plume is assessed via seven monitoring locations, three located on-base (MW107, MW110, MW117), and four located off-base (MW134, MW135, and MW400). These monitoring wells are located to the west of the airfield, and extend to the suburb of Uralla, located directly west of the base. Sampling of this monitoring area was completed during the September 2023 monitoring event.

Obstructions were present in two monitoring wells since October 2021 which required alternate locations to be sampled as a substitute (detailed in **Section 3.4**):

- On-base monitoring well MW118, which is located along the western base boundary, and was sampled as an alternate for MW117, which is located approximately 600 metres north of MW118.
- Off-base monitoring well MW732, which is located approximately 700 metres south of Stuart Highway, and was sampled as an alternate for MW134, located approximately 700 metres south of MW732.

Historical concentrations of PFOA and PFOS+PFHxS in the in the central portion of the plume are shown graphically in **Graph G9** and **G10** (**Appendix D**) for on-base locations, **and Graph G11 and G12** for off-base locations (**Appendix D**). PFOS, PFOS+PFHxS and PFOA results are summarised in **Table 27**, and presented in full as **Table T2** (**Appendix C**).

No discernible trends were identifiable from temporal graphs **Graph G9** through **G12 (Appendix D)** with exception to monitoring locations MW135, which may be exhibiting an increasing trend. MW135 is the northernmost monitoring well in this area. North of MW135 consists of private range land and no potential groundwater bore users until crossing Gorge Road 3 kilometres away.

Table 27 Groundwater summary results – Base boundary and central plume (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min – Max	Dry Season (August 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season (February - April 2024)
On-base Locations					
MW107	PFOS	0.36 - 1.6	0.65	n/s	n/s
	PFOS+PFHxS	0.51 - 2.01	0.82	n/s	n/s
	PFOA	0.02 - 0.05	0.02	n/s	n/s
MW110	PFOS	2.46 - 6.9	3.41	n/s	n/s
	PFOS+PFHxS	3.80 - 9	4.66	n/s	n/s
	PFOA	0.1 - 0.2	0.14	n/s	n/s
MW117	PFOS	0.28 - 1.6	n/s	n/s	n/s
	PFOS+PFHxS	0.65 - 6.29	n/s	n/s	n/s
	PFOA	<LOR - 0.6	n/s	n/s	n/s
MW118 (alt. for MW117)	PFOS	0.74 - 1.5	2.0	n/s	n/s
	PFOS+PFHxS	1.64 - 2.16	3.05	n/s	n/s
	PFOA	0.03 - 0.07	0.08	n/s	n/s
Off-base Locations					
MW134	PFOS	0.58 - 1.45	n/s	n/s	n/s
	PFOS+PFHxS	0.86 - 3.00	n/s	n/s	n/s
	PFOA	0.02 - 0.06	n/s	n/s	n/s
MW732 (alt. for MW134)	PFOS	<LOR - 0.85	0.3	n/s	n/s
	PFOS+PFHxS	<LOR - 1.29	0.46	n/s	n/s
	PFOA	<LOR - 0.03	<LOR	n/s	n/s
MW135	PFOS	<LOR - 0.10	0.06	n/s	n/s
	PFOS+PFHxS	<LOR - 0.22	0.11	n/s	n/s
	PFOA	<LOR - 0.01	<LOR	n/s	n/s
MW400	PFOS	0.97 - 1.5	1.24	n/s	n/s
	PFOS+PFHxS	1.80 - 2.34	1.76	n/s	n/s
	PFOA	0.03 - 0.05	0.04	n/s	n/s

n/s = not sampled

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.

Orange shading indicates one or more results above the historical range.

In periods with multiple sampling events, the maximum value for the period is presented.

Monitoring location MW118, located at the western base boundary, reported a new maximum concentration of 3.30 µg/L for Sum of PFOS+PFHxS in September 2023. However, the reported result is within the same order of magnitude as historical range and consistent with results recorded from this monitoring location.

No other increases in concentrations of PFOS, PFOS+PFHxS and PFOA were detected within samples collected during the monitoring period in this monitoring area. The plume conditions at / near the base boundary and within the central portion of the plume remain similar to conditions described during the 2017 investigative period.

8.3.8 Off-base Katherine township (east of Katherine River) trend analysis

The off-base Katherine Township monitoring wells are located east of the Katherine River. There are a total of 11 locations, which consist of a mixture of private property bores, Katherine Town Council extraction bores, and Department of Defence and Department of Environment, Parks and Water Security (DEPWS) monitoring wells. The locations are presented in **Table 28** below.

Historical concentrations of PFOA and PFOS+PFHxS in the downgradient / leading edge of the plume are shown graphically in **Graph G13** and **Graph G14 Appendix D**). PFOS, PFOS+PFHxS and PFOA results are summarised in **Table 28,** and presented in full as **Table T2** (**Appendix C**).

A review of temporal graphs **Graph G13** and **G14** (**Appendix D**) indicates that monitoring locations MW138, MW140, OTH113 and OTH115 may be exhibiting increasing trends, while OTH116 appears to be exhibiting a decreasing trend. Additional wet season data applied to a statistical analysis that accounts for seasonality would likely be needed to understand the PFAS concentration trends at the boundary and central plume areas.

Table 28 Groundwater summary results - off-base Katherine Township (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (August 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season (February 2024 - April 2024)
MW137	PFOS	0.1 - 0.29	0.19	n/s	n/s
	PFOS+PFHxS	0.19 - 0.52	0.34	n/s	n/s
	PFOA	<LOR - 0.01	<LOR	n/s	n/s
MW138	PFOS	0.85 - 2.09	n/s	n/s	n/s
	PFOS+PFHxS	1.43 - 3.29	n/s	n/s	n/s
	PFOA	<LOR - 0.03	n/s	n/s	n/s
OTH116 (alt for MW138)	PFOS	0.63	0.67	n/s	n/s
	PFOS+PFHxS	1.06 - 1.08	1.11	n/s	n/s
	PFOA	0.02	0.02	n/s	n/s
MW140	PFOS	0.01 - 0.53	0.15	n/s	n/s
	PFOS+PFHxS	0.02 - 0.97	0.23	n/s	n/s
	PFOA	<LOR - 0.02	<LOR	n/s	n/s
MW141	PFOS	<LOR - 0.06	n/s	n/s	n/s
	PFOS+PFHxS	<LOR - 0.23	n/s	n/s	n/s
	PFOA	<LOR - 0.01	n/s	n/s	n/s
MW142	PFOS	<LOR - 0.09	0.03	n/s	n/s
	PFOS+PFHxS	<LOR - 0.12	0.05	n/s	n/s
	PFOA	<LOR	<LOR	n/s	n/s
MW144	PFOS	<LOR	<LOR	n/s	n/s
	PFOS+PFHxS	<LOR	<LOR	n/s	n/s
	PFOA	<LOR	<LOR	n/s	n/s
OTH113	PFOS	0.07 - 0.15	0.1	n/s	n/s
	PFOS+PFHxS	0.12 - 0.25	0.20*	n/s	n/s
	PFOA	<LOR	<LOR	n/s	n/s
OTH115 (RN7807)	PFOS	0.13 - 0.15	0.13	n/s	n/s
	PFOS+PFHxS	0.25 - 0.27	0.22	n/s	n/s
	PFOA	<LOR	<LOR	n/s	n/s
POT119 (MW445)	PFOS	<LOR	n/s	n/s	n/s
	PFOS+PFHxS	<LOR	n/s	n/s	n/s
	PFOA	<LOR	n/s	n/s	n/s

n/s = not sampled [1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.
(*) Duplicate result used
Orange shading indicates one or more results above the historical range.
Green shading indicates one or more results below the historical range.
In periods with multiple sampling events, the maximum value for the period is presented.

A new maximum concentration of PFOS+PFHxS was reported at OTH116, located at the Katherine Sportsgrounds, in September 2023. OTH116 is the alternative well for MW138, and while located in a similar location within the PFAS plume, it is located further down hydraulic gradient, and as such initial samples from this location indicated that PFAS concentrations are marginally lower than in MW138. The new maximum concentration recorded at OTH116 is marginally higher than previous concentrations recorded although within an order of magnitude of historical results. A new minimum concentration for PFOS+PFHxS was reported in OTH115, located in the northeast part of Katherine East at the Power and Water property on Morris Road, in September 2023. The new minimum concentration is within an order of magnitude of the historical concentration range, and within the expected range of variability for this location.

Off-base monitoring location MW135, located at the Katherine Research Station, has reported PFOS+PFHxS concentrations above the historical average since 2021. This location tracks the northern edge of the PFAS plume in this area, and therefore the northern plume edge is not completely tracked at this location. The adjacent land to the north is undeveloped with the closest potential bore users located approximately three kilometres to the northwest of this location. Therefore, the risk from plume migration to the north in this area is currently low.

No other increases in concentrations of PFOS, PFOS+PFHxS and PFOA were detected within samples collected during the monitoring period in this sub-region of the management area.

Overall, measured PFAS concentrations in off-base groundwater locations have been recorded at or above the HEPA (2020) PFAS NEMP Human Health Drinking Water guideline value at MW137, MW140, MW142, OTH113, OTH115 and OTH116 during this monitoring period.

A review of temporal trend graphs **G13** and **G14** (**Appendix D**) indicated there may be a correlation between late wet season conditions and higher recorded PFAS concentrations, however, data has not been collected regularly across both wet and dry season conditions to determine if late wet and late dry season conditions are significantly different.

Based on data collected over the reported monitoring period, the conditions within the Katherine Township monitoring area remain similar to conditions reported previously.

8.3.9 Off-base west Katherine River trend analysis

The off-base monitoring wells located west of Katherine River are located within the leading edge of the plume of PFAS impacted groundwater. These locations consist of private property and Katherine Town Council extraction bores (prefix POT). For privacy reasons, descriptions of the specific locations of private property bores are not included in this section.

Historical concentrations of PFOA and PFOS+PFHxS reported in the off-base monitoring wells west of Katherine River are shown graphically in **Graph G15**, **G16a G16b** and **G16c** (Appendix D). PFOS, PFOS+PFHxS and PFOA results are summarised in **Table 29** and are presented in full as **Table T2** (Appendix C).

No discernible trends identifiable from temporal graphs **Graph G15** through **G16c (Appendix D**) with exception monitoring locations OTH114, POT113, POT121, and POT122, which may be exhibiting increasing trends. Additional data will assist with determining trends in monitoring locations west of Katherine River.

Table 29 Groundwater summary results - off-base west of Katherine River (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (August 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season (February 2024 - April 2024)
MW528	PFOS	0.06 - 0.12	n/s	n/s	n/s
	PFOS+ PFHxS	0.06 - 0.17	n/s	n/s	n/s

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (August 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season (February 2024 - April 2024)
	PFOA	<LOR - 0.01	n/s	n/s	n/s
OTH114 (RN33019)	PFOS	0.04 - 0.34	0.19	n/s	0.14
	PFOS+ PFHxS	0.02 - 0.56	0.3	n/s	0.23
	PFOA	<LOR - 0.01	<LOR	n/s	<LOR
POT112	PFOS	<LOR - 0.04	0.03	0.1	0.03
	PFOS+ PFHxS	0.01 - 0.08	0.08	0.14	0.07
	PFOA	<LOR - 0.04	<LOR	<LOR	<LOR
POT113	PFOS	<LOR - 0.88	0.02	0.19	0.22
	PFOS+ PFHxS	<LOR - 0.91	0.05	0.43	0.38
	PFOA	<LOR - 0.05	<LOR	0.01	<0.01
POT114	PFOS	<LOR - 0.11	<LOR	<LOR	0.02
	PFOS+ PFHxS	<LOR - 0.18	<LOR	<LOR	0.02
	PFOA	<LOR	<LOR	<LOR	<LOR
POT120 (MW512)	PFOS	0.01 - 0.092	0.03	0.03	0.03
	PFOS+ PFHxS	0.02 - 0.14	0.05	0.05	0.05
	PFOA	<LOR	<LOR	<LOR	<LOR
POT121 (MW599)	PFOS	<LOR - 0.05	0.02	0.02	0.05
	PFOS+ PFHxS	<LOR - 0.07	0.05	0.04	0.08
	PFOA	<LOR	<LOR	<LOR	<LOR
POT122 (MW614)	PFOS	<LOR - 0.2	n/s	n/s	n/s
	PFOS+ PFHxS	<LOR - 0.17	n/s	n/s	n/s
	PFOA	<LOR	n/s	n/s	n/s
POT123	PFOS	<LOR	n/s	n/s	n/s
	PFOS+ PFHxS	<LOR	n/s	n/s	n/s
	PFOA	<LOR	n/s	n/s	n/s
POT124	PFOS	<LOR - 0.03	0.01	<LOR	0.02
	PFOS+ PFHxS	<LOR - 0.06	0.01	<LOR	0.02
	PFOA	<LOR	<LOR	<LOR	<LOR
POT125	PFOS	<LOR	<LOR	<LOR	<LOR

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (August 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season (February 2024 - April 2024)
	PFOS+ PFHxS	<LOR	<LOR	<LOR	<LOR
	PFOA	<LOR	<LOR	<LOR	<LOR
POT126	PFOS	<LOR	<LOR	<LOR	<LOR
	PFOS+ PFHxS	<LOR	<LOR	<LOR	<LOR
	PFOA	<LOR	<LOR	<LOR	<LOR
POT127	PFOS	<LOR	<LOR	<LOR	<LOR
	PFOS+ PFHxS	<LOR	<LOR	<LOR	<LOR
	PFOA	<LOR	<LOR	<LOR	<LOR
POT128	PFOS	<LOR – 0.02	<LOR	<LOR	<LOR
	PFOS+ PFHxS	<LOR – 0.03	<LOR	<LOR	<LOR
	PFOA	<LOR	<LOR	<LOR	<LOR
POT129	PFOS	<LOR – 0.01	<LOR	<LOR	0.03
	PFOS+ PFHxS	<LOR – 0.01	<LOR	<LOR	0.04
	PFOA	<LOR	<LOR	<LOR	<LOR
POT130	PFOS	<LOR	<LOR	<LOR	<LOR
	PFOS+ PFHxS	<LOR	<LOR	<LOR	<LOR
	PFOA	<LOR	<LOR	<LOR	<LOR
POT131	PFOS	<LOR	<LOR	<LOR	<LOR
	PFOS+ PFHxS	<LOR	<LOR	<LOR	<LOR
	PFOA	<LOR	<LOR	<LOR	<LOR
POT198	PFOS	<LOR	<LOR	<LOR	<LOR
	PFOS+ PFHxS	<LOR	<LOR	<LOR	<LOR
	PFOA	<LOR	<LOR	<LOR	<LOR
POT201	PFOS	<LOR	<LOR	<LOR	<LOR
	PFOS+ PFHxS	<LOR	<LOR	<LOR	<LOR
	PFOA	<LOR	<LOR	<LOR	<LOR
OTH117	PFOS	<LOR – 0.02	<LOR	<LOR	0.01
	PFOS+ PFHxS	<LOR – 0.03	<LOR	<LOR	0.01
	PFOA	<LOR	<LOR	<LOR	<LOR

Location ID	Analyte	Historical Range[1]	OMP Events (OMR August 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (August 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season (February 2024 - April 2024)
OTH118	PFOS	<LOR - 0.03	<LOR	<LOR	0.02
	PFOS+ PFHxS	<LOR - 0.05	<LOR	<LOR	0.02
	PFOA	<LOR	<LOR	<LOR	<LOR
OTH119	PFOS	<LOR	n/s	<LOR	0.08
	PFOS+ PFHxS	<LOR	n/s	<LOR	0.12
	PFOA	<LOR	n/s	<LOR	0.03

n/s = not sampled.

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.

Orange shading indicates one or more results above the historical range.

It is noted that new maximum concentrations were reported in samples collected during mid to late wet season monitoring events (January – April 2024) from POT112, POT121, POT129 and OTH119. There may be a correlation between seasonal rainfall fluctuations and PFOS+PFHxS concentrations west of Katherine River. Further aquifer and plume monitoring is required to confirm potential trends / associations. Access to monitoring wells not used for groundwater extraction west of Katherine River may allow for more targeted location sampling to evaluate PFAS migration in this area and to collect groundwater elevation data. Currently, all bores sampled west of Katherine River are active extraction bores and do not allow for access to collect groundwater depth data.

A review of temporal trend graphs **G15**, **G16a, G16b and G16c** (**Appendix D**) indicated that there is a correlation between late wet season conditions and higher recorded PFAS concentrations, with the highest concentrations considered to be associated with mid to late wet season conditions and low concentrations related to dry season or early wet season conditions. Monitoring locations OTH117, OTH118, POT113, POT121, POT122, POT124, and POT129, in particular, show significant seasonal variance corresponding to recorded precipitation totals. Additionally, POT113, POT120 and POT129 all appear to have increasing trends when reviewing PFAS concentrations recorded between 2017 and 2024.The sampling schedule for Cossack wells includes monthly sampling from November to April and a single dry season sampling event in August. This sampling schedule has been in place since early wet season 2021 and is likely to provide a more robust data set to capture how precipitation totals might impact PFAS concentrations in the area and to confirm suspicions that the plume is expanding in this direction.

8.4 Surface water results

8.4.1 Approach to surface water temporal trend analysis

The following sections detail results of surface water sampling which was carried out across two key drainage lines and a single recreational public swimming pool, Katherine River, Tindal Creek, and the Katherine Town Council Swimming Pool. The monitoring locations associated with each sampling area are presented in **Table 30** below.

Table 30 Surface water sampling areas: surface water monitoring IDs

Sampling Location	Surface Water Monitoring IDs
Katherine River	SW100, SW108, SW110, SW151, SW153, SW161
Tindal Creek (on-base and off-base)	SW016, SW021, SW049, SW140, SW188, SW350,

Sampling Location	Surface Water Monitoring IDs
Katherine Town Council Swimming Pool	OTH008

Temporal graphs for PFOA and PFOS+PFHxS concentrations in surface water are presented in **Appendix D** as summarised in **Table 31** below. The surface water temporal graphs only include locations which consistently report greater than LOR for respective analytes. Where sample results were less than the LOR, half the LOR was adopted for the graph.

Table 31 Summary of locations selected for surface water temporal plots

Sampling Location	Graph	Analyte	Surface Water Monitoring IDs
Katherine River[1]	G17	PFOS+PFHxS	SW100, SW108, SW110, SW151, SW153, SW161
Tindal Creek	G18	PFOA	SW016, SW021, SW049, SW140, SW188,
	G19	PFOS+PFHxS	SW016, SW021, SW049, SW140, SW188, SW350,
Katherine Town Council Swimming Pool[1]	G20	PFOS+PFHxS[1]	OTH008

[1] PFOA temporal graphs for Katherine River and Katherine Town Council Swimming Pool management areas were not presented due to consistently below LOR results at all locations.

8.4.2 Katherine River Trend Analysis

Six surface water monitoring locations are positioned along the Katherine River and consist of areas used for recreation, areas of groundwater discharge as surface water, and ecological receptors. The locations are presented in **Table 30** above, historical concentrations of PFOS+PFHxS at surface water locations along Katherine River are shown graphically in **Graph G17** (**Appendix D**). PFOS, PFOS+PFHxS and PFOA results are summarised in **Table 32**. The complete data set has been presented as **Table T4** (**Appendix C**).

Table 32 Surface water summary results - Katherine River (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR July 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (July 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season / Early Dry (February 2024 - April 2024)
SW100	PFOS	<LOR - 0.16	0.14	n/s	<LOR
	PFOS+PFHxS	<LOR - 0.32	0.24	n/s	<LOR
	PFOA	<LOR	<LOR	n/s	<LOR
SW108	PFOS	<LOR - 0.25	0.14	<LOR	0.05
	PFOS+PFHxS	<LOR - 0.42	0.23	<LOR	0.08
	PFOA	<LOR - 0.0037	<LOR	<LOR	<LOR
SW110	PFOS	<LOR - 0.03	0.02	n/s	<LOR
	PFOS+PFHxS	<LOR - 0.05	0.02	n/s	<LOR
	PFOA	<LOR - 0.001	<LOR	n/s	<LOR
SW151	PFOS	<LOR - 0.16	0.14	n/s	n/s
	PFOS+PFHxS	<LOR - 0.24	0.25	n/s	n/s
	PFOA	<LOR - 0.01	<LOR	n/s	n/s

Location ID	Analyte	Historical Range[1]	OMP Events (OMR July 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (July 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season / Early Dry (February 2024 - April 2024)
SW153	PFOS	<LOR - 0.04	0.02	<LOR	0.02
	PFOS+PFHxS	<LOR - 0.05	0.03	<LOR	0.04
	PFOA	<LOR	<LOR	<LOR	<LOR
SW161	PFOS	<LOR - 0.16	<LOR	n/s	<LOR
	PFOS+PFHxS	<LOR - 0.28	<LOR	n/s	<LOR
	PFOA	<LOR	<LOR	n/s	<LOR

n/s – not sampled.

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.

Orange shading indicates one or more results above the historical range.

In periods with multiple sampling events, the maximum value for the period is presented.

During the monitoring period, concentrations of PFOS, PFOS+PFHxS and PFOA were reported within historical ranges at all locations sampled in the Katherine River, with the exception of SW151 (furthest down-gradient sampling location close to the Galloping Jack Boat Ramp) during the dry season event in 2023. A new maximum PFOS+PFHxS concentration of 0.25 µg/L was reported, however, the result is only marginally higher than the previous high result of 0.24 µg/L recorded in November 2020. PFOA concentrations were not reported above the laboratory LOR during the monitoring period in the Katherine River at any of the locations sampled. Similarly to conditions reported in the DSI (Coffey, 2018a), reported PFAS concentrations typically increase during the dry season when there is a higher percentage of contribution of groundwater to the Katherine River and decrease during the wet season conditions when dilution is a dominant factor with more contribution from precipitation generated in upper catchment watershed. Observed PFAS concentrations in Katherine River remain similar to conditions reported during the historical investigative period.

8.4.3 Tindal Creek trend analysis

Tindal Creek is the main conduit for surface water transport of PFAS sourced from the base to Katherine River. Four surface water monitoring locations are positioned along Tindal Creek, SW016, SW021, SW188, and SW350. A total of 8 primary samples were collected from the four monitoring locations across the two monitoring events during the current monitoring period.

Historical concentrations of PFOA and PFOS+PFHxS at surface water locations along Tindal Creek are shown graphically in **Graph G18** and **G19 (Appendix D**). PFOS, PFOS+PFHxS and PFOA results are summarised in **Table 33**, and presented in full in **Table T4** (**Appendix C**)

Table 33 Surface water summary results– Tindal Creek (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR July 2023 - April 2024 Monitoring Period)	
		Min - Max	Early Wet Season (November 2023 - January 2024)	Late Wet Season / Early Dry (February - April 2024)
SW016	PFOS	0.055 - 1.3	0.24	0.12
	PFOS+PFHxS	0.09 - 1.81	0.29	0.19
	PFOA	<LOR - 0.05	<LOR	<LOR
SW021	PFOS	0.04 - 1.10	1.25	0.08
	PFOS+PFHxS	0.05 - 1.45	1.4	0.13
	PFOA	<LOR - 0.04	0.24	<LOR

Location ID	Analyte	Historical Range[1]	OMP Events (OMR July 2023 - April 2024 Monitoring Period)	
		Min - Max	Early Wet Season (November 2023 - January 2024)	Late Wet Season / Early Dry (February - April 2024)
SW049	PFOS	0.92 - 65	2.66	1.35
	PFOS+PFHxS	0.94 - 79	3.4	1.83
	PFOA	<LOR - 2.0	0.1	0.05
SW140	PFOS	0.67 - 16	3.67	3.07
	PFOS+PFHxS	0.19 - 19.7	4.1	3.95
	PFOA	0.12 - 2.5	0.7	0.16
SW188	PFOS	0.05 - 2.7	0.38	0.51
	PFOS+PFHxS	0.05 - 3.41	0.41	0.76
	PFOA	<LOR - 0.08	<LOR	0.02
SW350	PFOS	<LOR - 0.07	0.05	<LOR
	PFOS+PFHxS	<LOR - 0.09	0.08	<LOR
	PFOA	<LOR	<LOR	<LOR

n/s = not sampled.

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.

Orange shading indicates one or more results above the historical range.

Green shading indicates one or more results below the historical range.

In periods with multiple sampling events, the maximum value for the period is presented.

Monitoring location SW021, located in Tindal Creek downgradient of the base boundary (and SW016 located at the base boundary), reported historically high PFOS and PFOA concentrations during the November 2023 monitoring event. The reported PFOS concentration of 1.25 µg/L was below the recreational guideline value of 2.0 µg/L and within an order of magnitude of the historical range. The reported PFOA concentration of 0.24 µg/L was below the guideline values for drinking water, recreational water, and protection of ecological receptors, but was an order of magnitude higher than any previously recorded PFOA concentration value from this location. Both PFOS and PFOA concentrations returned to the historical range during the subsequent sampling event in March 2024.

Collection of samples during the November sampling event occurred immediately after the first significant rain event of the wet season with 33 mm or rain recorded on 12 November 2023 at the base and sample collection occurring the following day. Elevated PFAS concentrations recorded at SW021 may be a result of flushing of stagnant water and sediments that would have settled over the dry season, potentially concentrating PFAS compounds during the natural evaporation process. These higher concentration pools and sediment areas would likely be captured during a first-flush rain event, collecting the higher concentration material and carrying it downstream. PFAS concentrations at other monitoring locations during the November 2023 event were slightly elevated but within historical ranges. It should be noted that the concentration recorded at SW021 during the March 2024 event was the second lowest PFOS+PFHxS concentration recorded for this location, and aside from the November 2023 event, concentrations have been below the historical average recorded at this location since 2021.

Monitoring location SW016 has recorded concentrations below the historical average since 2021, with corresponding concentrations of high mobility short chain PFAS compounds PFBS, PFPeA and PFHpA recording detections below the LOR since April 2021, and PFHpS and PFPeS all recording detections below the LOR since March 2022. Overall reductions in PFAS concentrations at base boundary monitoring location SW016 may be a result of soil remediation activities, particularly at the FSA.

It is noted that soil remediation works completed at the FSA and being completed at the FTA are anticipated to result in consequential improvements of PFAS concentrations within surface water within Tindal Creek.

8.4.4 Katherine Town Council swimming pool trend analysis

Monitoring location OTH008 is the Katherine Town Council Swimming Pool. A total of 35 sampling rounds have been completed at the swimming pool since September 2017 when concentrations of PFOS+PFHxS and PFOA were detected above LOR. Concentrations of PFOA have not been detected above LOR since November 2017. Concentrations of PFOS+PFHxS continue to be detected above the LOR. It should be noted that the Katherine Town Council Swimming Pool was shut down for repairs between the January 2024 and April 2024 sampling events and has not been opened for the public. Sampling of the pool will commence once the pool reopens.

Historical concentrations of PFOS+PFHxS within the Katherine Council Swimming Pool are shown graphically in **Graph G20** (**Appendix D**). PFOS+PFHxS and PFOA results are summarised in **Table 34,** and presented in full as **Table T4** in **Appendix C**.

Table 34 Surface Water Summary results– Katherine Swimming Pool (in µg/L)

Location ID	Analyte	Historical Range[1]	OMP Events (OMR July 2023 - April 2024 Monitoring Period)		
		Min - Max	Dry Season (July 2023 - October 2023)	Early Wet Season (November 2023 - January 2024)	Late Wet Season / Early Dry (February - April 2024)
OTH008	PFOS	<LOR - 0.42	0.04	0.03	n/s
	PFOS+PFHxS	<LOR - 0.84	0.07	0.06	n/s
	PFOA	<LOR - 0.02	<LOR	<LOR	n/s

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.
In periods with multiple sampling events, the maximum value for the period is presented.

Concentrations of PFOS+PFHxS were reported within historical ranges for OTH008 (Katherine Swimming Pool) during the monitoring period. PFOA was not reported above the LOR during the monitoring period. It has been reported that the Katherine Swimming Pool does not use bore water to fill the pool, however, PFOS+PFHxS concentrations have remained relatively similar over the monitoring period.

8.5 Aquatic biota

Aquatic biota sampling included the collection and analysis of low, moderate, and high bio-accumulation fin-fish species as shown in **Table 35,** and crustaceans (cherabin). Specific targeted indicator species are collected during sampling, while other relevant opportunistic catch species are collected if available. Other non-target or relevant opportunistic catch species are not collected during sampling. Aquatic biota monitoring within Katherine River is conducted annually at the end of the dry season to monitor changes in PFAS concentrations over time and confirm ongoing relevance of data used to inform NT Health advice to the community.

Table 35 Bioaccumulation biota groups

Group	Indicator / target species	Relevant opportunistic catch
Low bio-accumulation species	Barramundi	Sleepy cod Sooty grunter
Moderate bio-accumulation species	Bony Bream	Black or blue catfish Butlers grunter Barred grunter
High bio-accumulation species	Mullet	None in this category

The analytical data for the current monitoring period as well as the historic biota sampling results are included as **Table T5** in **Appendix C**. These tables present the aquatic biota concentrations gathered since 2017 and have been collected from BIO078 and BIO088 located on the Katherine River within the

vicinity of monitoring locations SW108 and SW151, respectively. Monitoring activities are summarised in the 2023 Dry Season Sampling Event Factual Report (AECOM, 2023) which is included in **Appendix B**.

An assessment of the PFAS results from the current monitoring period against historic ranges has been completed in **Table 36** below. Historic ranges have been based on the species groups presented in **Table 35** above.

Table 36 Analytical results for PFOS+PFHxS, PFOS and PFOA in aquatic biota samples (in µg/L)

Group	Analyte	Historic Range[1]		OMP Event (October 2023)		
		Min	Max	Min	Max	Average of October 2023 event
Low bio-accumulation species	PFOS+PFHxS	0.0005	1.406	0.026	0.114	0.052
	PFOS	0.0003	1.4	0.026	0.114	0.052
	PFOA	0.0006	0.0007	ND	ND	ND
Moderate bio-accumulation species	PFOS+PFHxS	0.002	0.3214	0.009	0.174	0.063
	PFOS	0.002	0.32	0.009	0.174	0.063
	PFOA	ND	ND	ND	ND	ND
High bio-accumulation species	PFOS+PFHxS	0.001	0.7727	0.066	0.189	0.128
	PFOS	0.001	0.77	0.066	0.189	0.128
	PFOA	ND	ND	ND	ND	ND
Crustaceans (Cherabin)	PFOS+PFHxS	0.001	0.094	0.013	0.109	0.045
	PFOS	0.001	0.091	0.013	0.109	0.044
	PFOA	ND	ND	ND	ND	ND

Concentrations which exceed relevant action criteria are filled yellow.

n/s = not sampled.

[1] historical data range since monitoring commenced in 2017, prior to current OMR monitoring period.

ND = not determined, all results below LOR.

The concentrations reported from all species groups were within the historical range for PFAS during the monitoring period. From the data it is observed that maximum concentrations detected for moderate and high bioaccumulation species exceeded relevant consumption criteria (FSANZ, 2017) for PFOS and PFOS+PFHxS, whilst the average moderate bio-accumulation species result also exceeded the relevant consumption criteria (FSANZ, 2017) for PFOS and PFOS+PFHxS.

Concentrations of PFOS+PFHxS and PFOS were detected across all samples collected during the monitoring period. Concentrations of PFOA did not exceed the LOR across the current monitoring period. It is noted that detections for these compounds were only seen in wet-season samples during the previous monitoring period.

In crustaceans, concentrations of PFOS+PFHxS exceed the relevant consumption criteria (FSANZ, 2017) in two samples collected from BIO088, although did not exceed the relevant consumption criteria (FSANZ, 2017) in samples collected from BIO078. Both results were within an order of magnitude of the historical PFAS concentration range.

The risks associated with consuming aquatic biota remain similar to conditions described in the Human Health Risk Assessment (HHRA) (Coffey, 2018c). Sampling of aquatic biota is conducted primarily to support NT Health to maintain the relevance of health advisories. The bioaccumulation of PFAS in aquatic biota will continue to be monitored through the OMP.

9.0 Discussion

9.1 Conceptual site model (CSM)

An initial CSM was developed during the investigation and human health risk assessment stages of the program (Coffey, 2018a; Coffey, 2018b; Coffey, 2018c), and summarised in the OMP (Defence, 2021b). The CSM summarises the linkages between sources, exposure pathways and receptors. Data obtained during the current monitoring period has been used to update and refine the initial CSM to incorporate the fluctuations in PFAS concentrations in groundwater and surface water observed on- and off-base.

Update and refinement of the CSM comprises:

- Source mass discharge reduction at the FTA and FSA because of recent and current soil remediation. It is anticipated that consequential improvements in surface water and groundwater will transpire in the short to long-term (i.e. reduced mass discharge from the source areas).
- Seasonal influence on the extent and magnitude of PFAS mass in groundwater on- and off-base. The soil remedial activities at the FTA and FSA (PFAS mass removal, adding PAC to the remaining soil to increase its PFAS adsorption capacity, and capping of the treated soil) have reduced the potential for PFAS to migrate (i) from the dry season vadose zone to groundwater when the water table rises during the wet season and (ii) to surface water via rainfall runoff.
- Currently, there is insufficient data to understand the seasonal impact on hydraulic gradient (as a result of a potential staggered response to groundwater elevation changes during the commencement / ending of seasons) and therefore groundwater flow velocity and plume migration.
- Receptor exposure: Encroachment of the PFAS plume, at concentrations that intermittently exceed drinking water criteria, into Cossack and potentially nearby in areas further south (both west and east of Katherine River). These areas are currently designated Management Area 5 (i.e. PFAS concentrations below the drinking water criteria). As such revision of receptor exposure, via drinking of groundwater, is warranted.

While the current CSM adequately describe the sources, pathways and receptors within the Management Area, additional investigation may be required to better predict how individual bores within Cossack respond to fluctuating conditions during the wet and dry seasons and the potential expansion of the PFAS plume further to the west of the Management Area.

In summary, new historical maximums have been detected off-base within this monitoring period, although typically within the same order of magnitude, future monitoring is required to establish whether these increases are the result of seasonal variations or representative of an increasing trend and westward plume migration.

Reported PFAS concentrations in groundwater at the two primary source areas (FTA and FSA) have fluctuated seasonally. Noting that, FTA groundwater monitoring location MW104 has recorded new minimum concentrations below both the historical average, and more specifically, below the historical dry season average since remediation works at the FTA began in 2022. It should be noted that only one well in the FSA OMP network records groundwater conditions downgradient of the FSA remediation area. Additional wells at the FSA are sampled under a post remediation validation program. Results from this program has thus far been inconclusive, however, some locations closest to the remediation area have reported PFAS concentrations below the historical average since September 2023. Including additional wells to the OMP within the existing monitoring network at both the FSA and FTA would provide better coverage to assess the impact that the soil remediation programs are having on PFAS concentrations in the localised groundwater.

PFAS concentrations in surface water locations both on- and off-base remain relatively stable, however, recorded PFAS concentrations at the base boundary at SW016 have been below the historical average since 2021, with corresponding concentrations of high mobility short chain PFAS compounds reporting below the LOR since 2021. Ongoing monitoring of PFAS within Tindal Creek will need to be conducted to determine if soil remediation works at the FSA and FTA result in continued decreases in PFAS concentrations within Tindal Creek (due to reduced PFAS in rainfall runoff).

Within the Katherine River concentrations were reported below the recreational guideline value during the monitoring period. Additionally, a strong seasonal trend has been observed with PFAS concentrations typically lower during the wet season due to stormwater contributing more to river flow.

The HHRA (Coffey, 2018c) identified specific Management Zones within the Management Area intended to distinguish between water uses and are further characterised by PFAS concentrations. The identified Management Zones are presented in **Table 37** below. Data obtained during the monitoring period indicated expansion of the PFAS groundwater plume to the west, consideration should be given to the requirement to change the PFAS Management Zones (in particular Management Zone 2) specified in **Figure F1** (**Appendix A**).

Table 37 HHRA investigation area zones

Zone	Zone 1	Zone 2	Zone 3	Zone 4 (1)	Zone 5 (2)
Water source description	Extracted groundwater from private bores	Extracted groundwater from private bores	Katherine River water (downstream of sampling location SW110 [adjacent to Rapide Street])	Town water supply (4)	Extracted groundwater from private bores or Katherine River water upstream of sampling location SW110 (adjacent to Rapide Street)
Health based guideline for PFAS in drinking water (3)	PFOS+PFHxS concentrations above drinking water guideline	PFOS+PFHxS concentrations above drinking water guideline	PFOS+PFHxS concentrations above drinking water guideline during dry season	PFOS+PFHxS concentrations below drinking water guideline	PFOS+PFHxS concentrations below drinking water guideline
Health based guidance for primary contact recreation (3)	PFOS+PFHxS concentrations above recreational water guideline	PFOS+PFHxS Concentrations below recreational water guideline	PFOS+PFHxS concentrations below recreational water guideline	PFOS+PFHxS concentrations below recreational water guideline	PFOS+PFHxS concentrations below recreational water guideline
Predominant land uses	Rural residential RAAF Base Recreational	Rural residential RAAF Base Recreational	Rural residential Recreational	Urban residential Commercial Recreational	Rural residential Recreational

[1] Katherine township and Base residential area.
[2] Extracted groundwater from private bores or Katherine River water piped from upstream of sample location SW110 (adjacent to Rapide Street).
[3] Guidelines for PFAS compounds: PFOS+PFHxS and PFOA. DoH, 2019.
[4] Power & Water. Treated water from Katherine River, drawn from Donkey Camp Weir, located upstream of the Investigation Area.

9.2 Risk profile

9.2.1 Risk assessment summary

The HHRA (Coffey, 2018c) and the Ecological Risk Assessment (ERA) (Coffey, 2018d) assessed the potential off- and on-base human health and environmental risks resulting from exposure to base-derived PFAS in soil, groundwater and / or surface water.

9.2.2 Human health risk assessment

The exposure pathways where potential risks were identified as elevated in the HHRA (Coffey, 2018c) were as follows:

- Consumers of PFAS impacted groundwater or river water as a primary drinking water source.
- Consumers of home-grown produce (eggs and meat) irrigated using PFAS impacted groundwater.
- Consumption of aquatic biota captured from the Tindal Creek or Katherine River (downstream of Knotts Crossing).
- Base construction or maintenance workers with direct contact to PFAS impacted soil and effluent.

The current data set collected under the OMP does not indicate that there is a change in the identified HHRA exposure pathways described above.

9.2.3 Ecological risk assessment

The exposure pathways where potential risks were identified as elevated in the ERA (Coffey, 2018c) were as follows:

- Aquatic invertebrates, amphibians and fish in PFAS impacted water. Plants in direct contact with soils.
- Birds and mammals that eat fish from Tindal Creek.
- Birds and mammals that eat plants, invertebrates and reptiles.

The current data set collected under the OMP does not indicate that there is a change in the identified ERA exposure pathways described above.

9.2.4 Risk profile evaluation

The key findings of the HHRA and ERA are supported by the data collected as part of the OMP over the monitoring period. However, there have been some changes observed in PFAS concentrations in groundwater and surface water within and outside the Management Area. These changes are attributed to increased data collection revealing seasonal fluctuations, potential westerly migration of PFAS in groundwater, and the effects of soil remediation in the two key source areas (FSA and FTA).

Exposure point concentrations relevant to human and ecological receptors have been directly assessed through the DSI (Coffey, 2018a) and key community exposure points continue to be monitored, including:

- The Katherine Town Council Swimming Pool (OTH008), which has remained less than the recreational guidance values since 2018. The swimming pool is currently being renovated and PFAS conditions within the swimming pool water may change depending on the nature of the renovations and if localised bore water is used as the pool's water source.
- The Katherine Hot Springs (SW153), which has remained less than the recreational guidance values since 2018.
- Aquatic biota (fish and cherabin) in Katherine River, which was identified as a potential exposure risk in the HHRA (Coffey, 2018c) and continues to be monitored for changes in risk level.
- Groundwater bores in Cossack on the western side of Katherine River, close to the river, where concentrations are potentially variable and have been shown to occasionally or periodically exceed drinking water values.

Preliminary risk profile assessments are provided for groundwater, surface water, aquatic biota, and the ecosystem within the Management Area as follows:

Groundwater

Groundwater concentrations east of Katherine River are consistent with the risk profile as devised in the HHRA (Coffey, 2018c), which related to unacceptable exposure to concentrations consistently above the drinking water guideline value. To the west of the Katherine River, however, instances have been identified where PFAS concentrations in individual wells have reported first time concentrations above

the drinking water criteria, with PFAS impacts within groundwater possibly migrating west of the extent of the current Management Area. It is recognised that most of these are either new detections that require further monitoring or are fluctuations where subsequent monitoring is either less than LOR or within historical ranges. Notably, there are a smaller number of instances where the reported concentration of PFOS+PFHxS has exceeded historical concentration ranges (i.e. new reported maximums). Observed increases in PFOS+PFHxS concentrations suggest that increasing trends may be emerging. Monitoring locations POT112, POT121, POT129 and OTH119 all reported new maximum concentrations of PFOS+PFHxS during the reporting period. Data suggests that PFAS groundwater encroachment in Cossack may be seasonally driven.

As some locations west of Katherine River occasionally have concentrations above the drinking water guideline, further examination of the risk profile in Cossack should be assessed and consideration given to the appropriateness of expanding the Management Area. Defence maintains a precautionary approach to support the community with programs to provide alterative water supplies to those impacted.

Surface water

Despite fluctuations of PFAS reported in surface water, concentrations are similar to previous monitoring for locations at Katherine River, Katherine hot springs and the Katherine Council public swimming pool. Sampling data recorded in Tindal Creek at the base boundary at monitoring location SW016 suggest that reductions in PFAS concentrations leaving the base via surface water are occurring and may be a result of soil remediation works completed at the FTA and at the FSA in particular.

All surface water locations were reported below the recreational guideline value during the monitoring events completed in the monitoring period, and there is no apparent change to the risk profile associated with PFAS concentrations present in surface water within the management area.

Aquatic biota

PFAS concentrations in aquatic biota from the Katherine River were similar to previous results. Based on consistency of the recent OMP results with historical concentrations, there is no apparent change to the risk profile associated with PFAS concentrations present in aquatic biota.

Ecological Risks

The conditions described within the ERA (Coffey, 2018d) remain accurate and the risks to organisms within the Management Area ecosystems remain unchanged at this time.

9.3 Assessment of current OMP

Based on the above review of the data collected during the monitoring period, there are no significant changes to the understanding of the nature, extent or risks associated with PFAS at the base or within the Management Area except for the following:

- Additional investigation within Cossack, west of Katherine River
- Additional sampling and potentially groundwater sampling locations to evaluate the short, medium, and long-term effectiveness of the soil remediation works completed at the FSA and to be completed in late 2024 at the FTA.

The need for monitoring of additional media was not identified nor recommended at this time. It is also understood that no significant OMP updates are required arising from stakeholder engagement or changes in land use.

Based on an evaluation of the data presented in this report the following OMP (Defence, 2021b) triggers were met:

- Thirty percent increase in PFAS concentrations in POT112, POT129 and OTH119.
- New exceedances of the drinking water criteria at POT121 and OTH119.

As a result of these specific triggers a review of the OMP may be required. Specifically, the OMP (Defence, 2021b) indicates that if additional properties report detectable concentrations of PFAS

(OTH119) the monitoring network should be expanded as required to characterise the risk from PFAS plume in the area.

Testing was performed at additional properties within the Cossack area in 2023 to determine if there is a change in risk outside the current Management Area within Cossack. No additional properties tested during this time period had PFAS results above the LOR, indicating that the existing private property bore network in Cossack remains sufficient in tracking PFAS in this area. However, as this testing was conducted during dry season conditions, the program may not have captured potential wet season PFAS concentration and plume fluctuations observed within Cossack under the OMP. Additional testing in Cossack will be performed during the forthcoming wet season.

Also, prior to the 2025-2026 wet season, a replacement monitoring well for POT119 (which is inaccessible, see Table 5) will be installed and monitoring commenced to provide data for assessing the northern extent of the plume in Katherine.

In addition, the suitability of the monitoring well network along the northern boundary of the Management Area is being evaluated to determine if additional monitoring locations should be included to delineate the plume.

10.0 Conclusion

Overview of CSM

The monitoring conducted over the current period is considered to have met the objectives of the SAQP and the overall OMP (Defence, 2021b). The CSM was reviewed in light of the monitoring data collected during the current monitoring period between July 2023 and April 2024, and changes / updates relating to previously identified sources, pathways and / or receptors at the base or within the Management Area are required to the CSM as described in the PMAP (Defence, 2019). The findings of the interpretive analysis conducted for the monitoring period are considered consistent with the risk profile for the Management Area. In summary, CSM changes of significant consequence were identified including but not limited to:

- Westerly migration and potential expansion of PFAS groundwater plume, particularly during and immediately following wet seasons.
- Increased potential receptor exposure in areas not previously observed (e.g. Cossack area etc.).
- Reductions in PFAS concentrations, particularly short chain PFAS compounds, have been observed at the base boundary within Tindal Creek, corresponding with when soil remediation actions took place at the FSA and FTA.
- The northern plume monitoring network may not completely capture the northern plume boundary. Additional monitoring locations included in a revised OMP would improve northern plume boundary tracking within the management area.

Groundwater analysis

Limited seasonal data collected over the monitoring period indicated that the PFAS groundwater plume is most likely seasonally influenced. Down-gradient locations report higher PFAS concentrations during the mid to late wet season within the leading edge of the plume within Cossack.

- PFAS-impacted groundwater perennially discharges into Katherine River. The concentrations of PFAS recorded during late dry season were higher than during wet season, when surface water runoff is a greater contributor to river flow.
- The FSA and FTA have both undergone or are undergoing remediation works (soils / infrastructure). Due to the apparent seasonal variation in PFAS concentrations, further monitoring is required to determine the influence of the works in reducing surface water and groundwater concentrations at, and downgradient of the key source areas.

Significant improvements to groundwater conditions down-gradient of the on-base source areas resulting from the operation of the two WTPs have not been clearly observed to date.

Surface water analysis

- No changes in PFAS conditions have been observed in Katherine River or Katherine Hot Springs over the monitoring period.
- PFAS concentrations reported within the Katherine Community Swimming Pool remain below the recreational criteria and were reported below the drinking water criteria during the monitoring period. The pool is currently undergoing renovations and is closed to the public. Testing will resume once the pool is reopened after completion of renovations.

Aquatic biota analysis

- Monitoring results from collected aquatic biota during the monitoring period remains similar to conditions recorded during the investigative stages. Further monitoring will continue to support NT Health to maintain consumption of aquatic biota advisory notices up to date / current.

11.0 References

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Appendix A

Figures

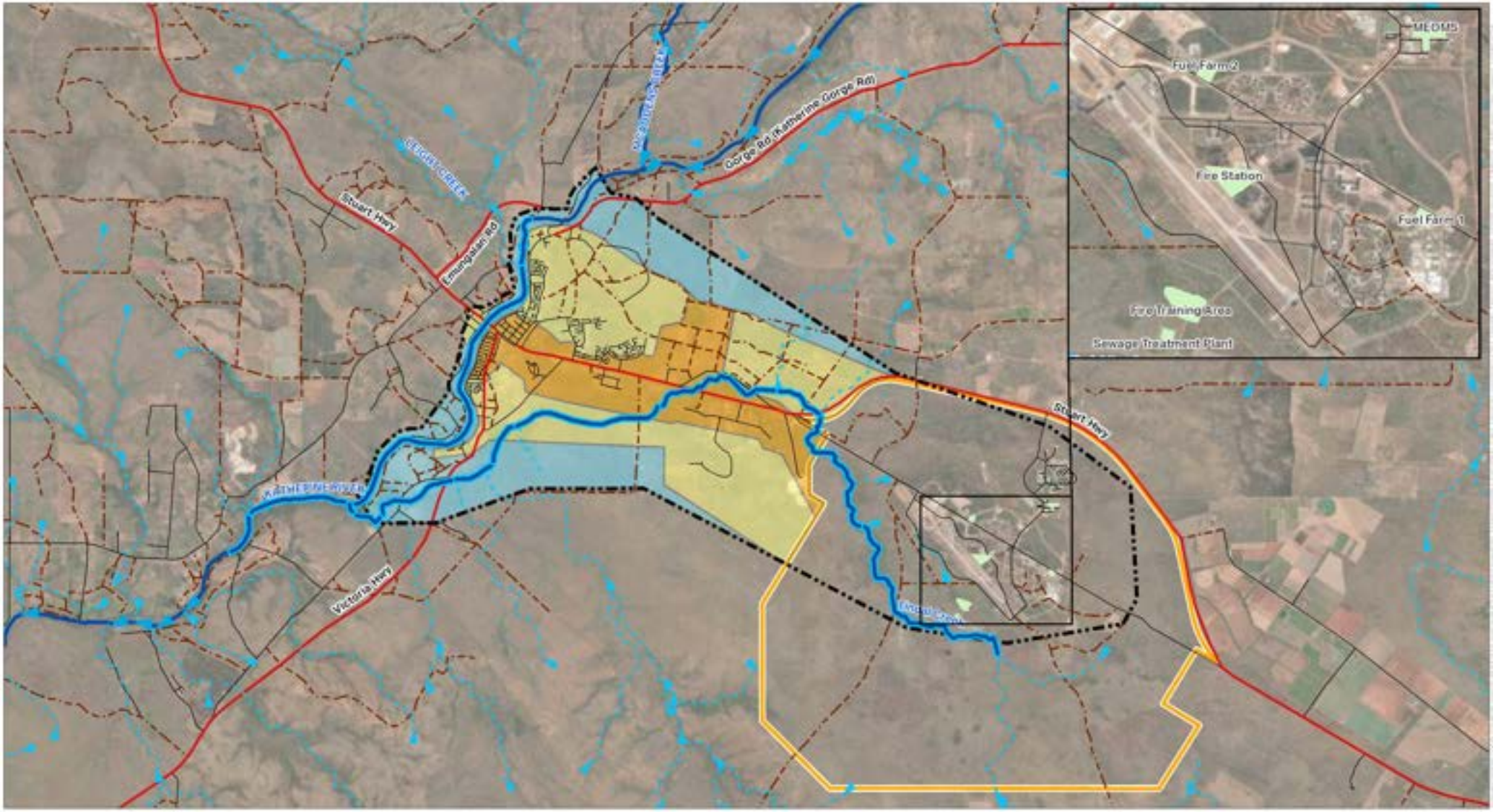

FIGURE F1: PFAS MANAGEMENT AREA

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Zone 1 Groundwater > Recreational Water Criteria
- Zone 2 Groundwater > Drinking Water Criteria
- Zone 5 Groundwater < Criteria
- Source Areas

Note:

Zone 4 - Treated Town Water Supply - Not shown

N

0 1 2 3 km

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FIGURE F2: OFF-BASE GROUNDWATER SAMPLE LOCATIONS

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Groundwater Monitoring Location

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

0 1 2 km

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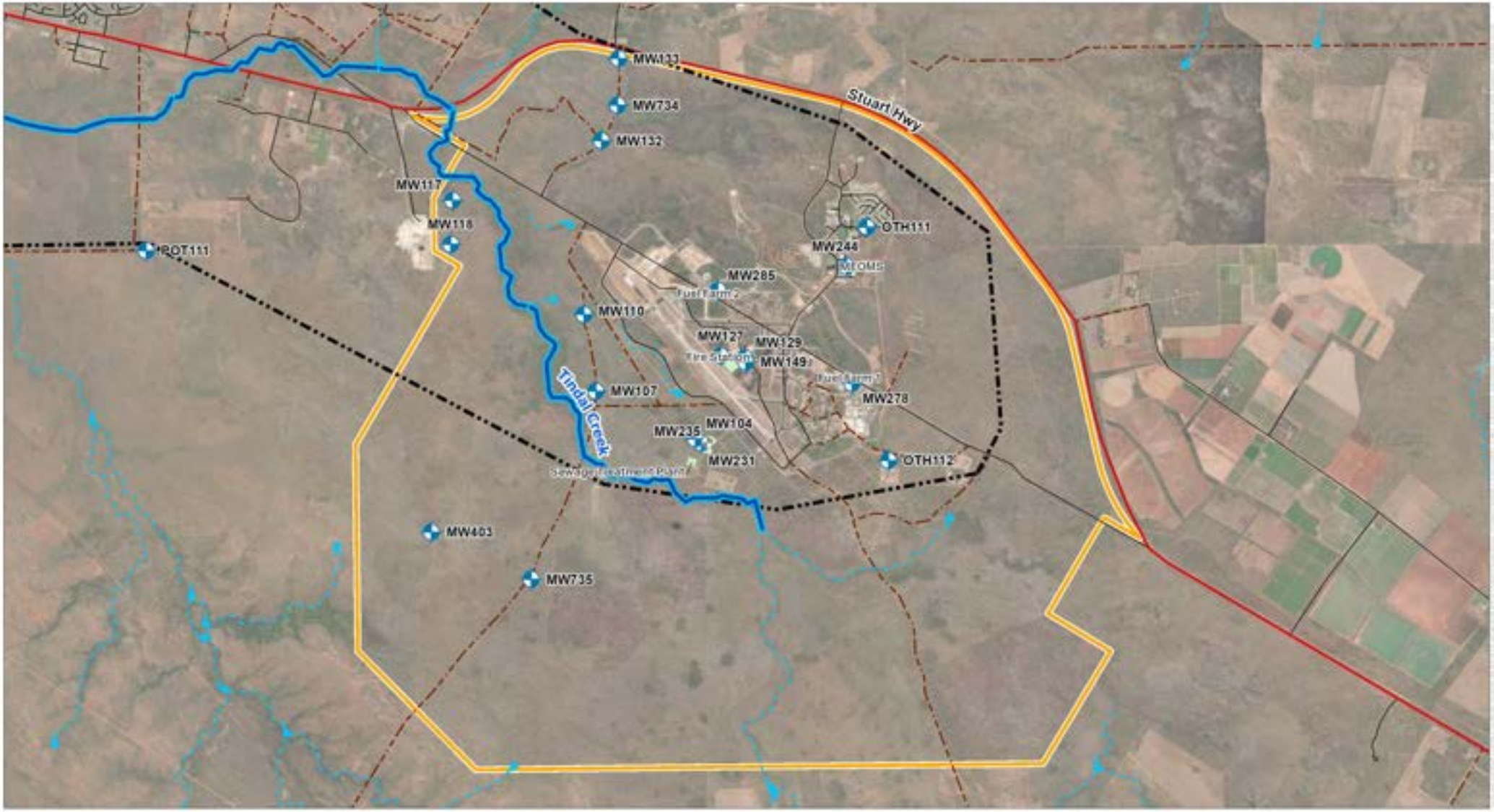

FIGURE F3: ON AND OFF-BASE GROUNDWATER SAMPLE LOCATIONS

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Drainage
- Groundwater Monitoring Location
- Groundwater Monitoring Location (Not Sampled)
- Source Areas

N

0 1 2 km

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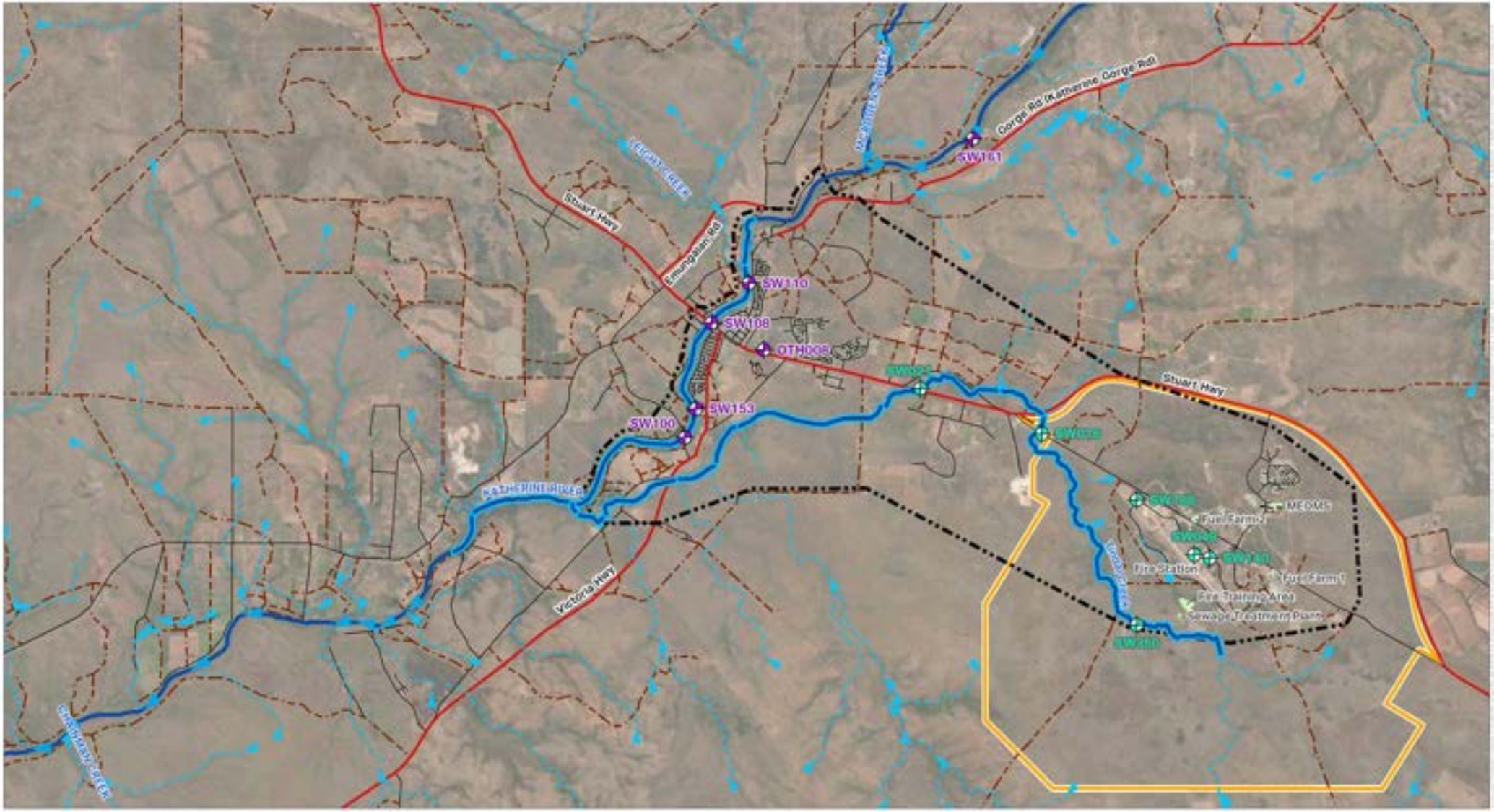

FIGURE F4: SURFACE WATER SAMPLING LOCATIONS

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Biannual Surface Water Monitoring Locations
- Twice in Wet Season Surface Water Monitoring Locations
- Source Areas

N

0 1 2 3 km

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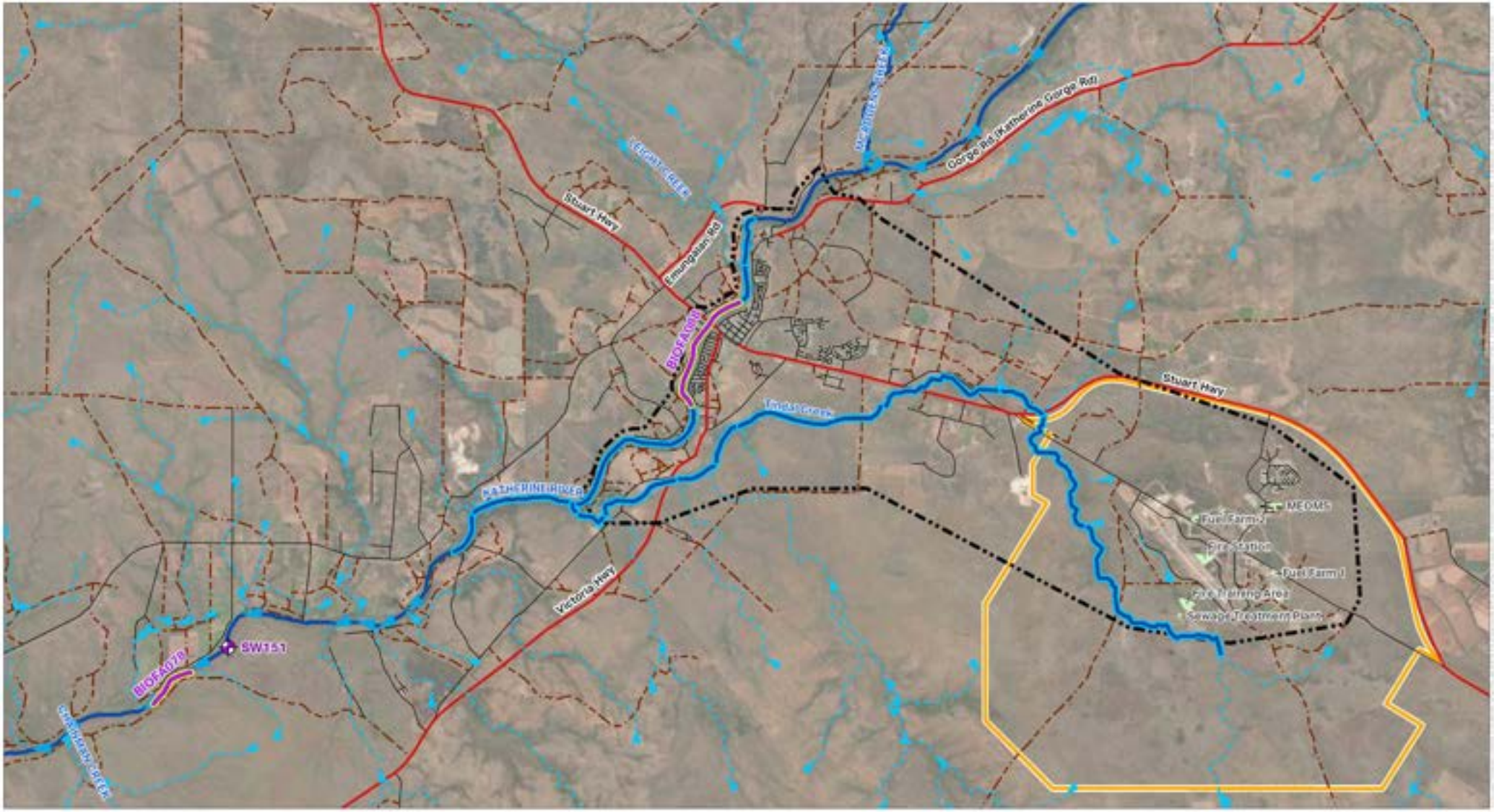

FIGURE F5: BIOTA SAMPLING LOCATIONS

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Biota Sampling Surface Water Locations
- Biota Sampling Locations
- Source Areas

N

0 1 2 3 km

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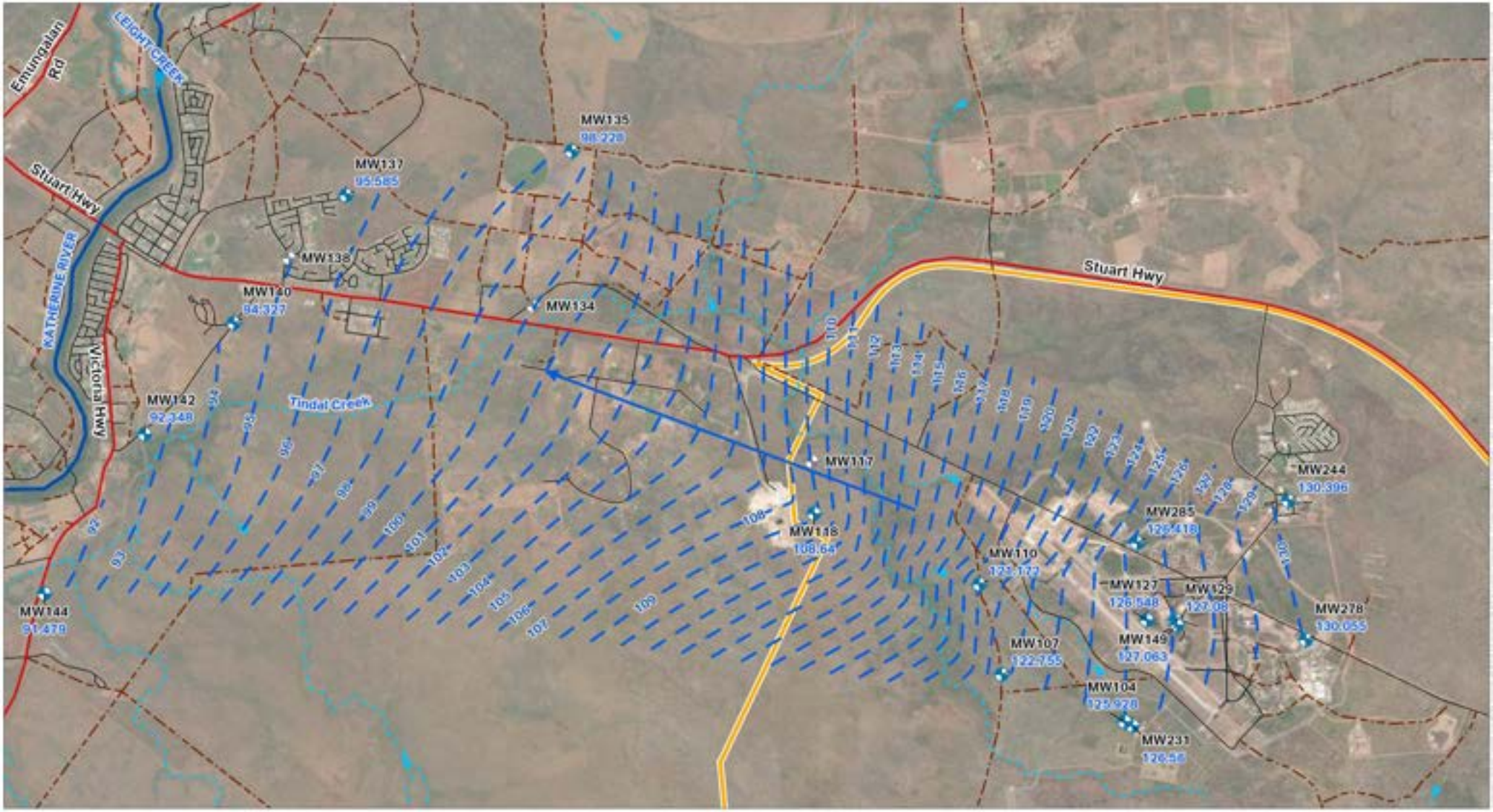

FIGURE F6: September 2023 Inferred Groundwater Flow and Elevation Contours

Legend

- RAAF Base Tindal
- Highway
- Road
- Track
- Katherine River
- Drainage
- Annual Groundwater Locations
- Not Sampled Due To Being Inaccessible, Dry or Blocked
- Inferred Groundwater Level (mAHD)
- Inferred Groundwater Direction

N

0 1 2 km

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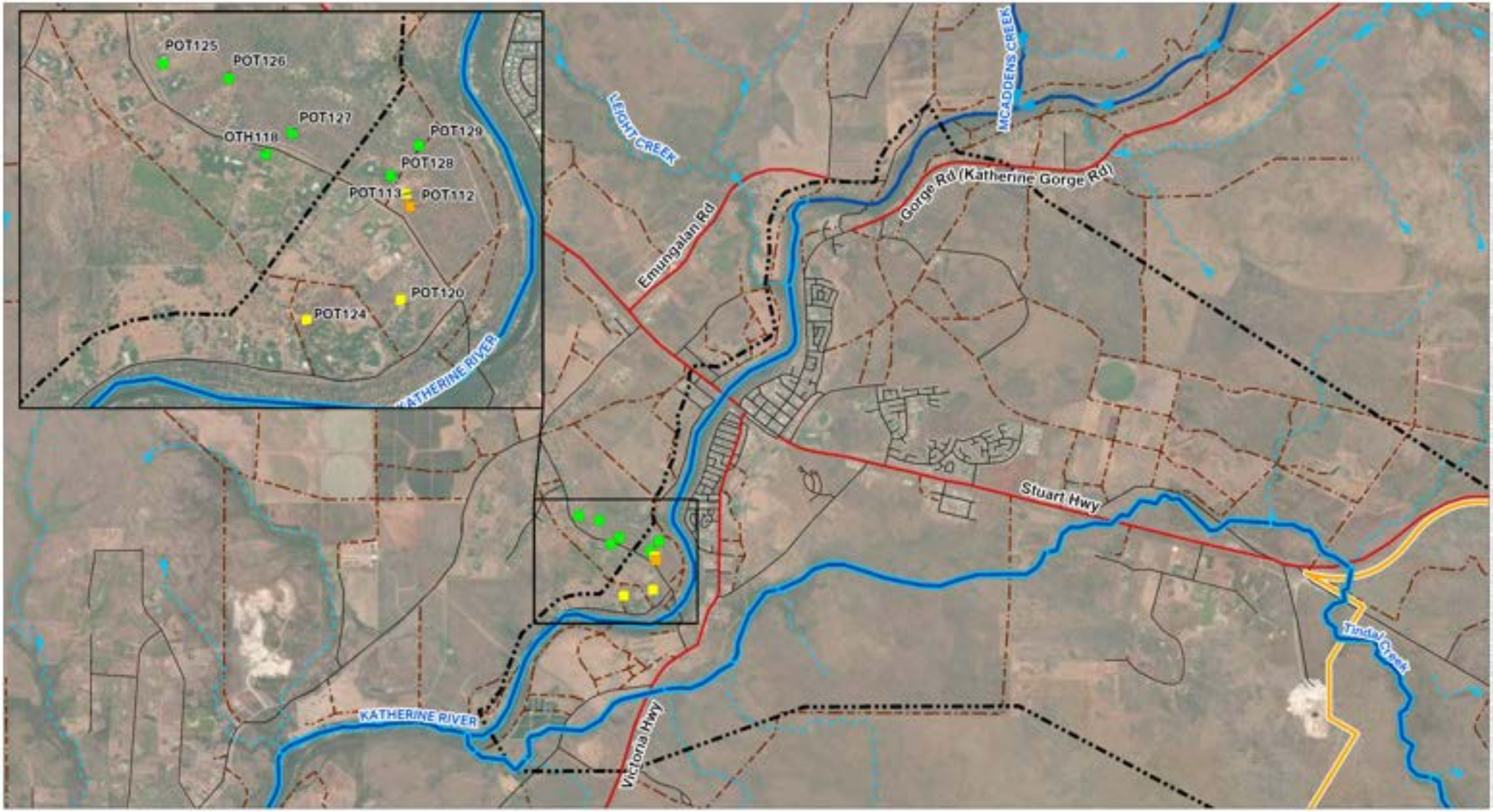

FIGURE F7.1: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS AUGUST 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 0.07 - 10
- > Limit of Reporting - 0.07
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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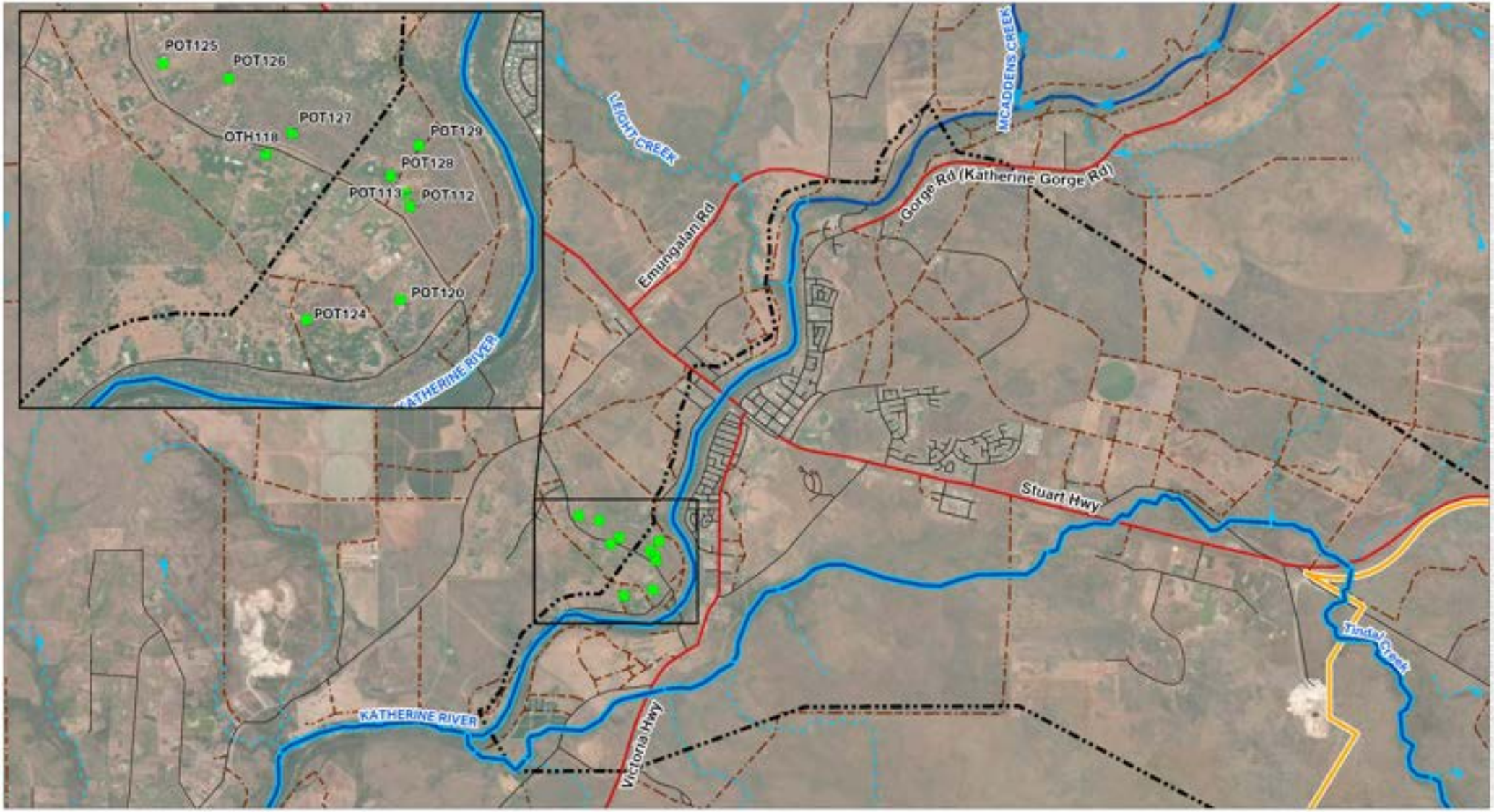

FIGURE F7.2: PFOA CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS AUGUST 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > Limit of Reporting - 0.56
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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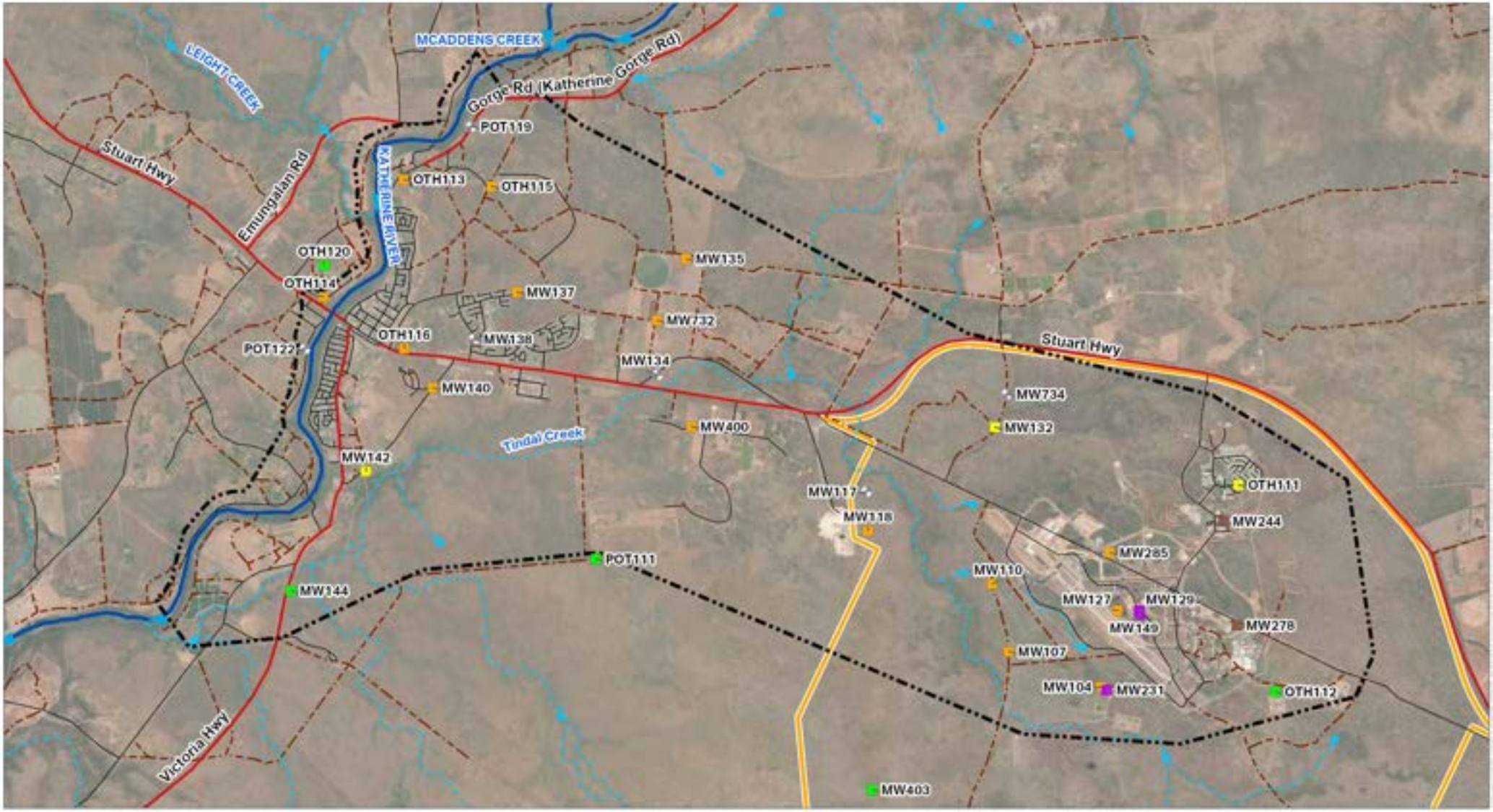

FIGURE F7.3: SUM OF PFOS + PFHxS CONCENTRATIONS FOR ON AND OFF-BASE GROUNDWATER LOCATIONS SEPTEMBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 0.07 - 10
- > Limit of Reporting - 0.07
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

N

0 1 2 km

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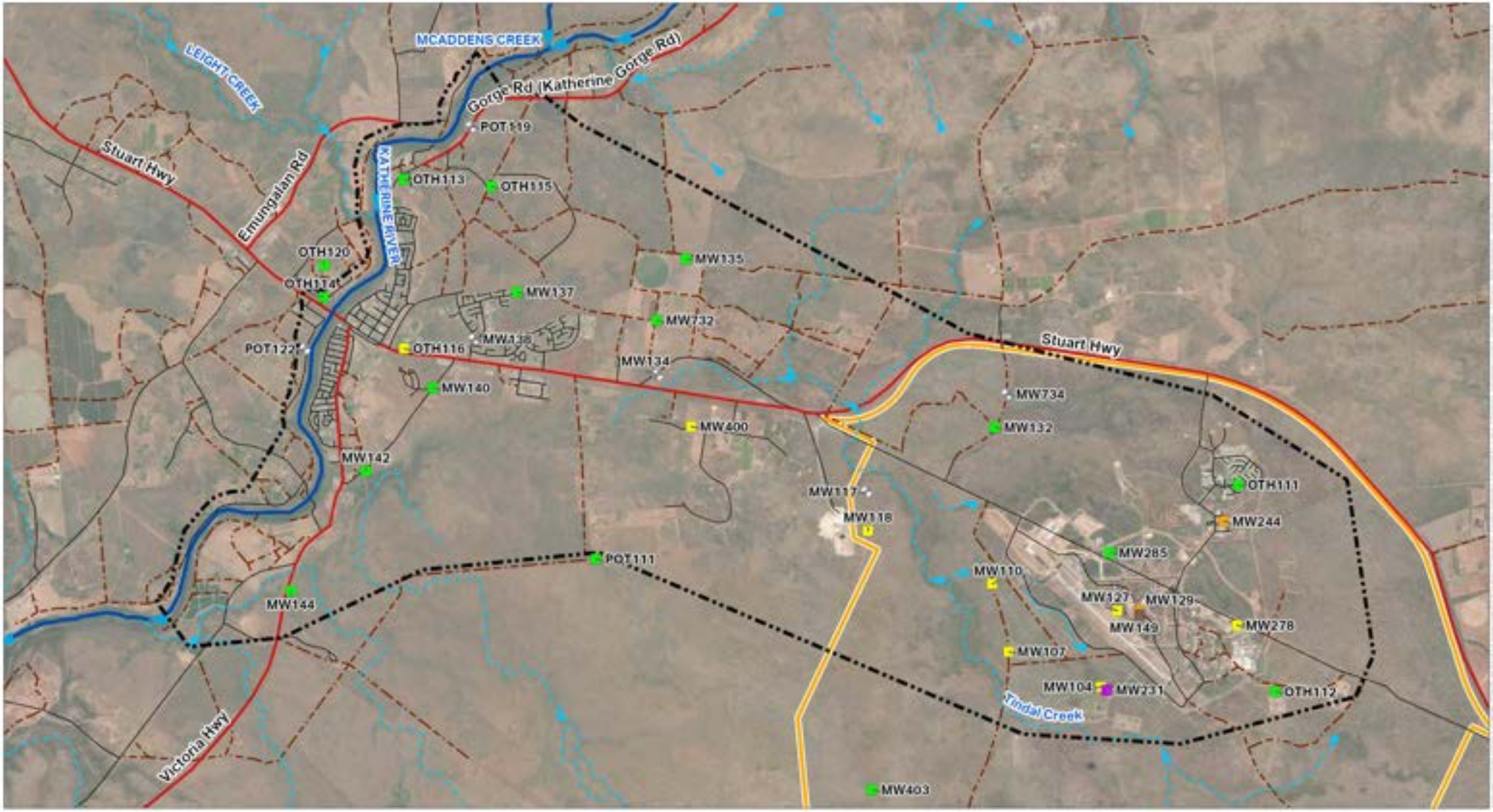

FIGURE F7.4: PFOA CONCENTRATIONS FOR ON AND OFF-BASE GROUNDWATER LOCATIONS SEPTEMBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > Limit of Reporting - 0.56
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

N

0 1 2 km

AECOM

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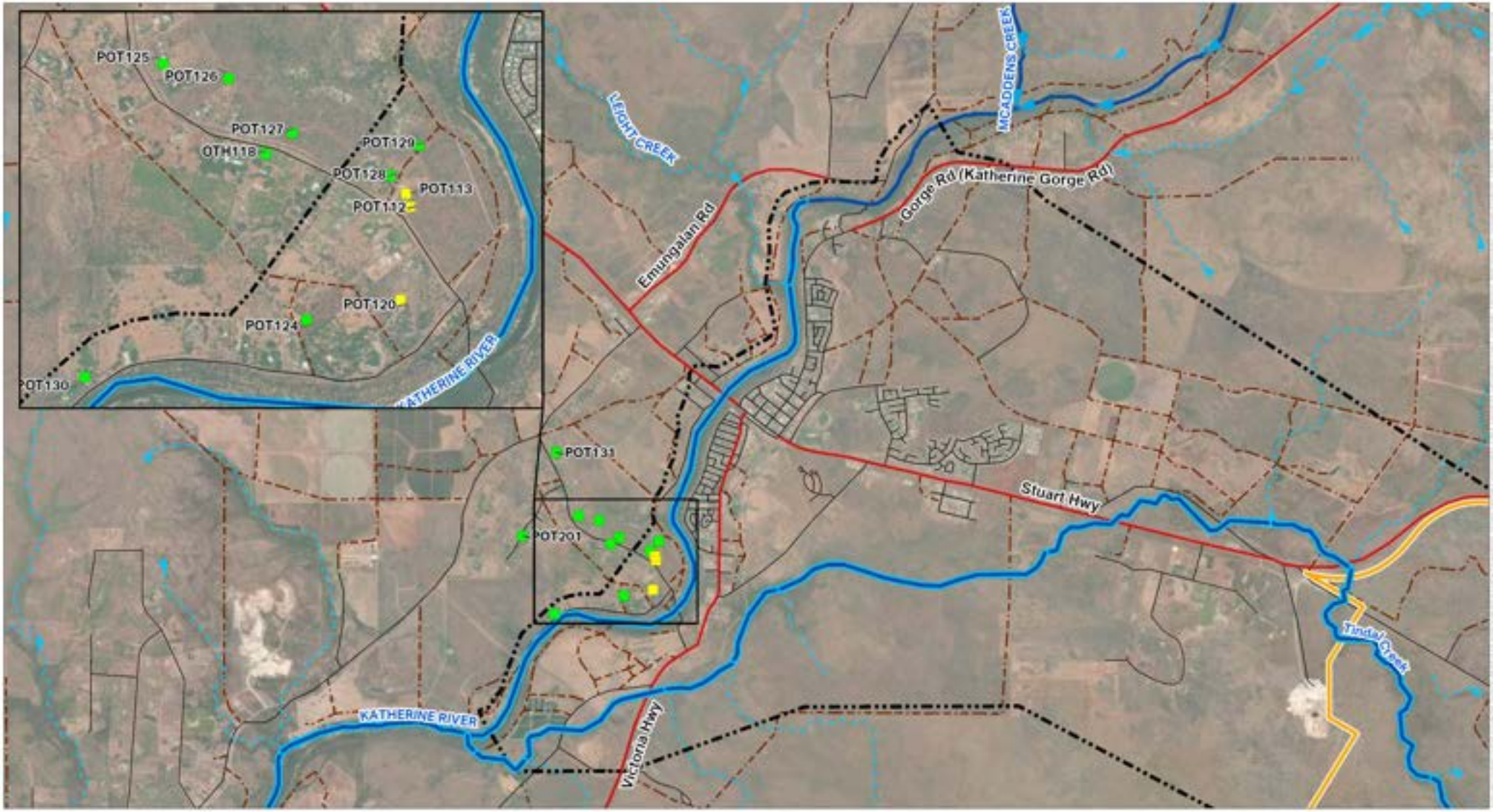

FIGURE F7.5: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS NOVEMBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 0.07 - 10
- > Limit of Reporting - 0.07
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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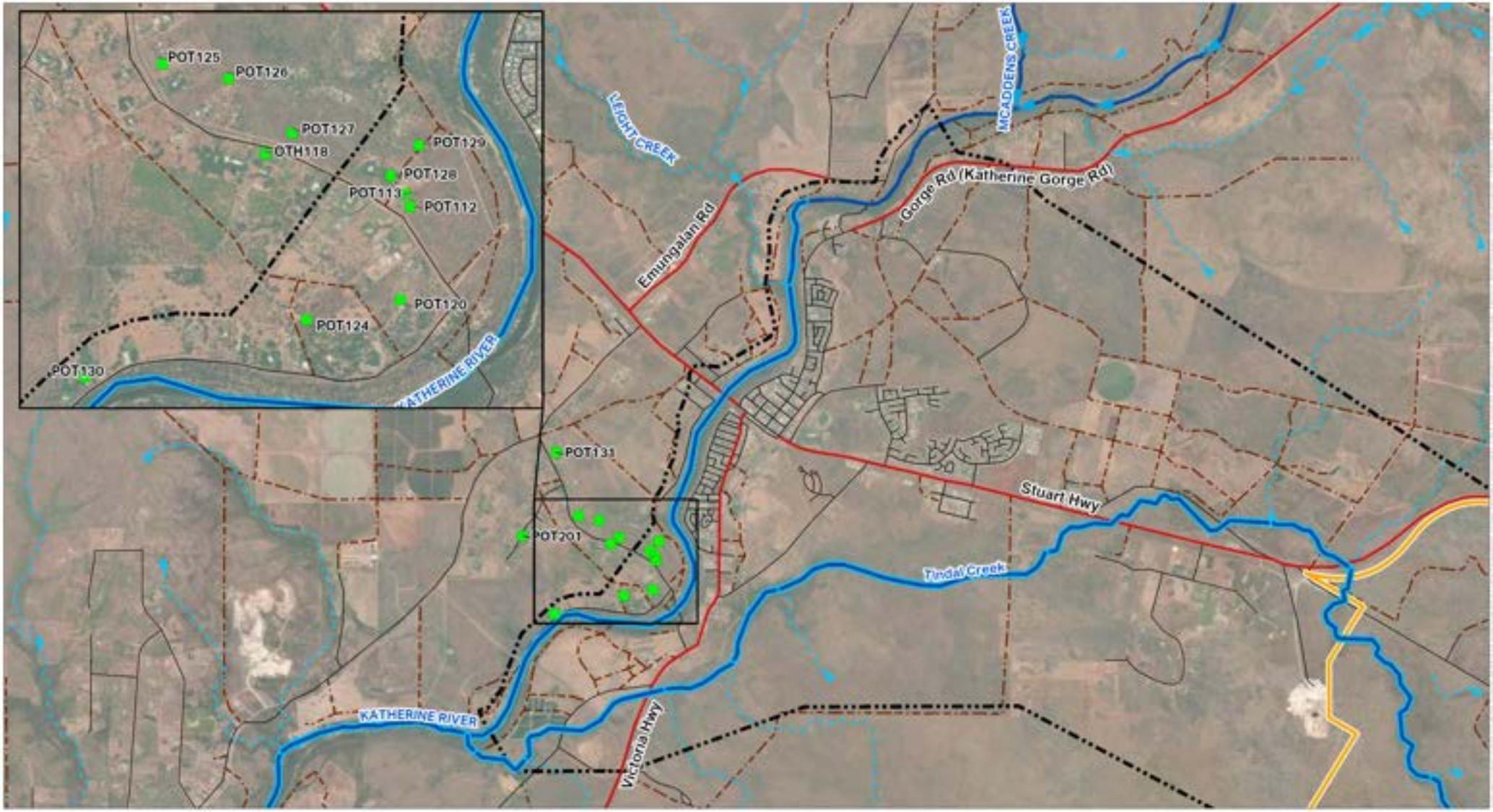

FIGURE F7.6: PFOA CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS NOVEMBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > Limit of Reporting - 0.56
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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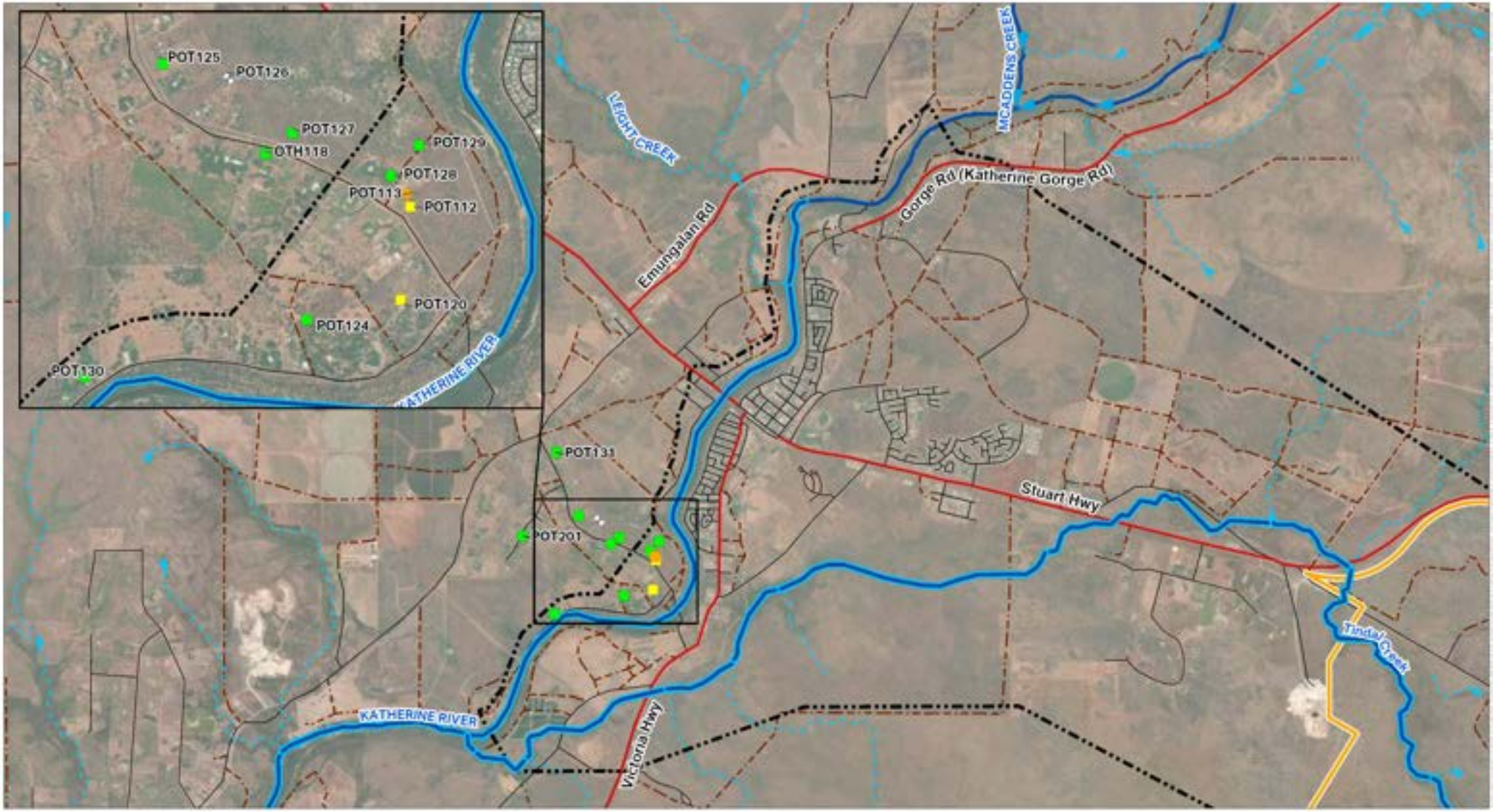

FIGURE F7.7: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS DECEMBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 0.07 - 10
- > Limit of Reporting - 0.07
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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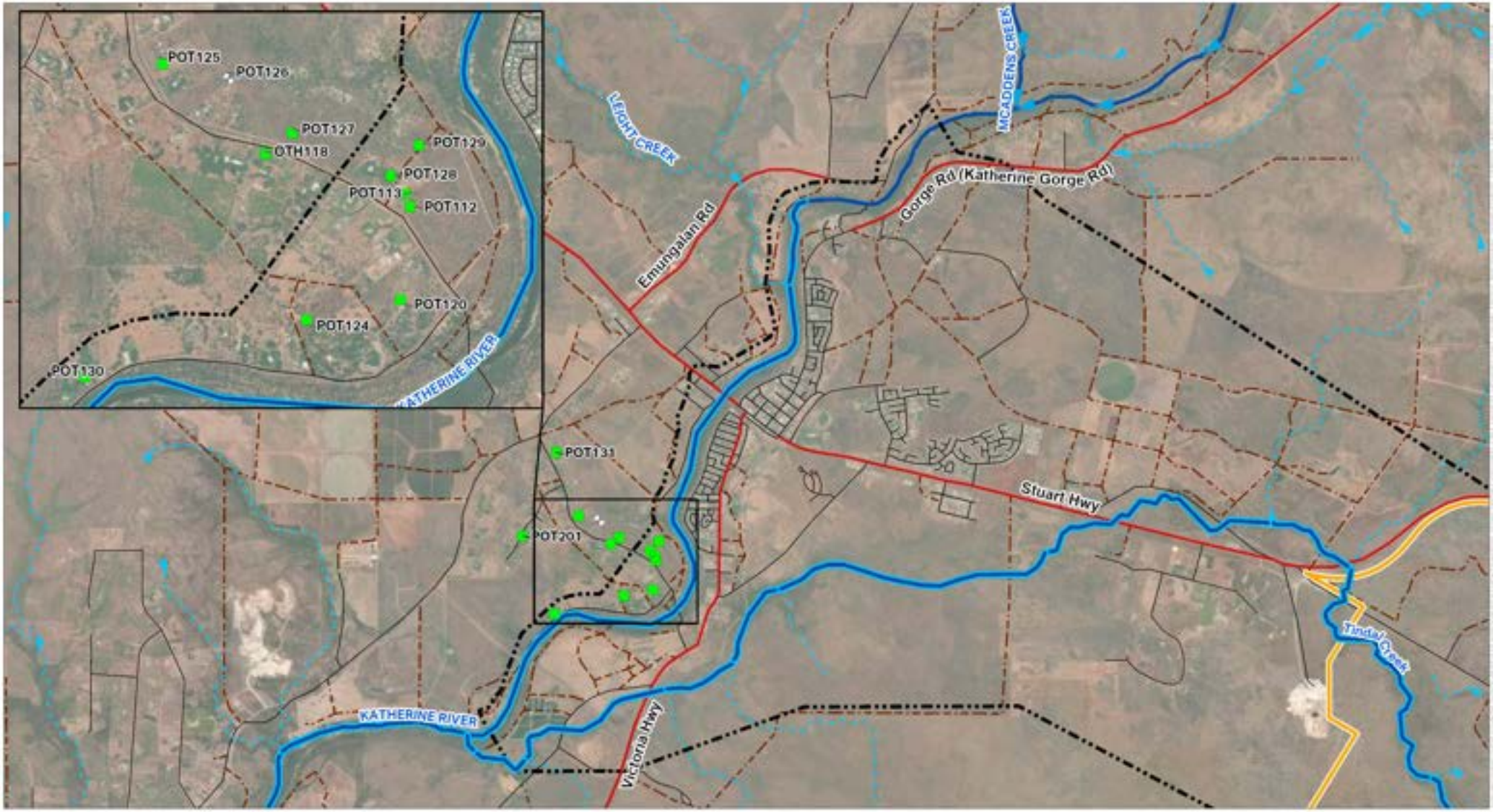

FIGURE F7.8: PFOA CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS DECEMBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > Limit of Reporting - 0.56
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

AECOM

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DEPARTMENT OF DEFENCE

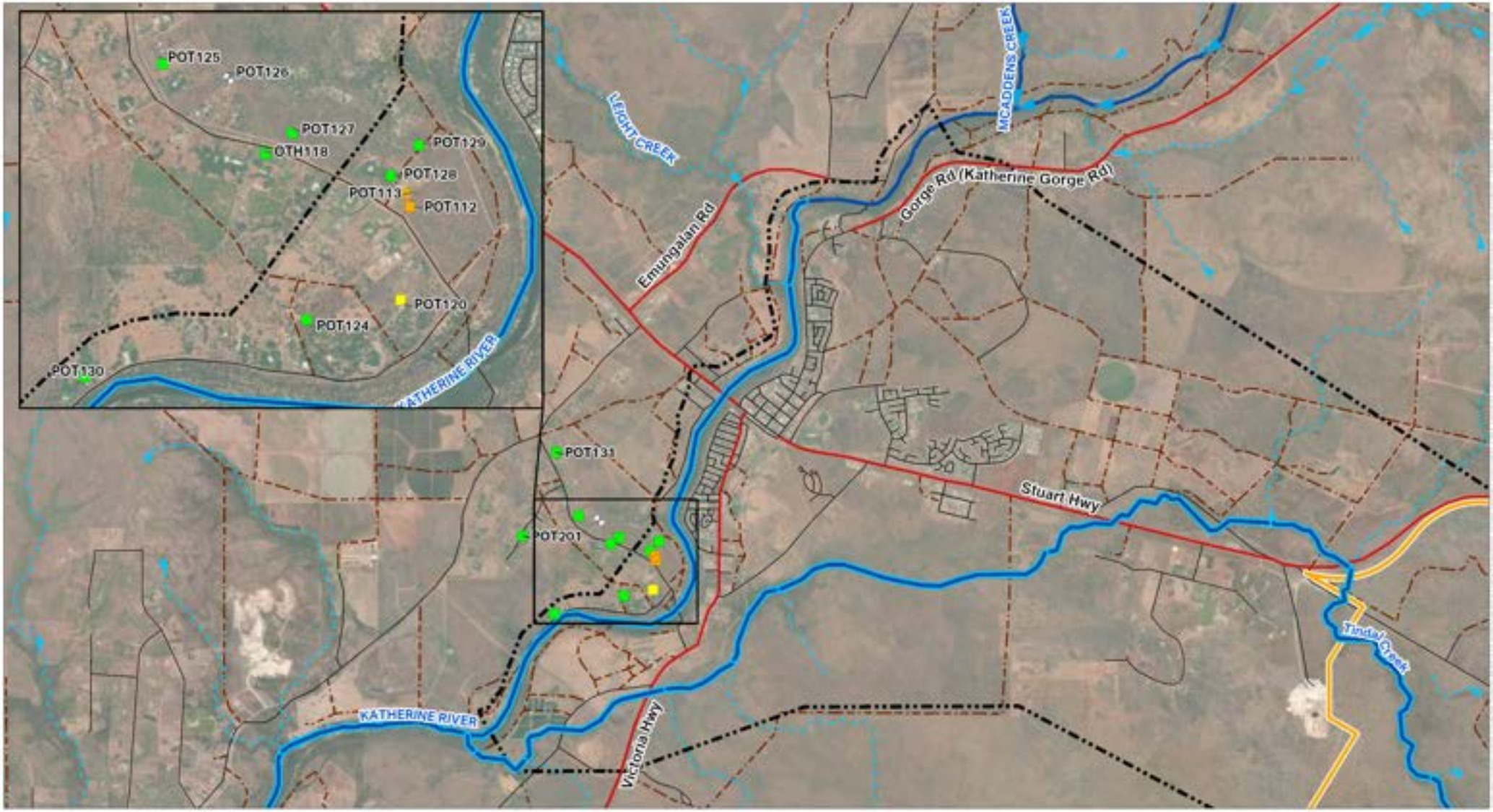

FIGURE F7.9: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS JANUARY 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 0.07 - 10
- > Limit of Reporting - 0.07
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

AECOM

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RAAF BASE TINDAL

DEPARTMENT OF DEFENCE

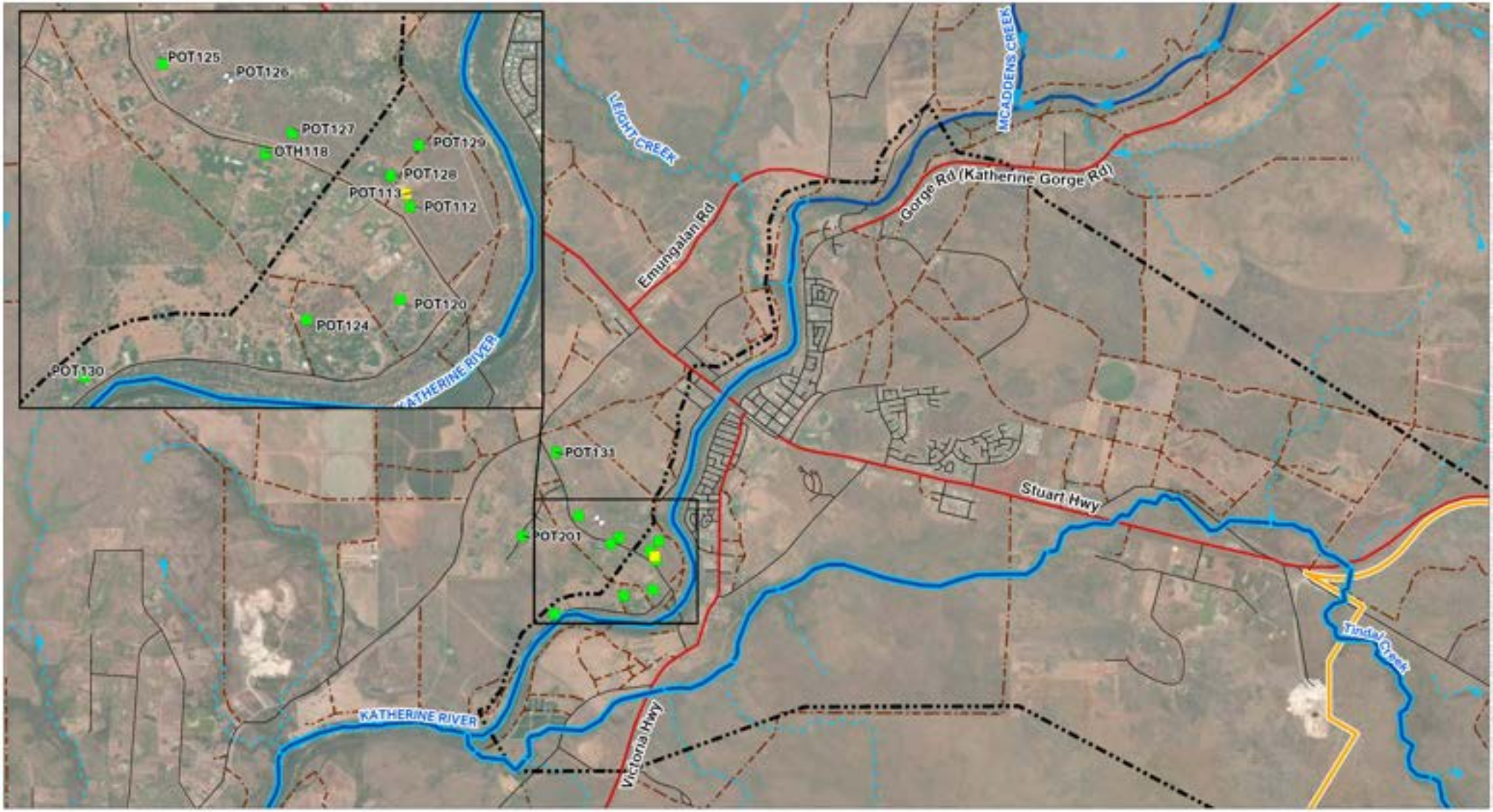

FIGURE F7.10: PFOA CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS JANUARY 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > Limit of Reporting - 0.56
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

AECOM

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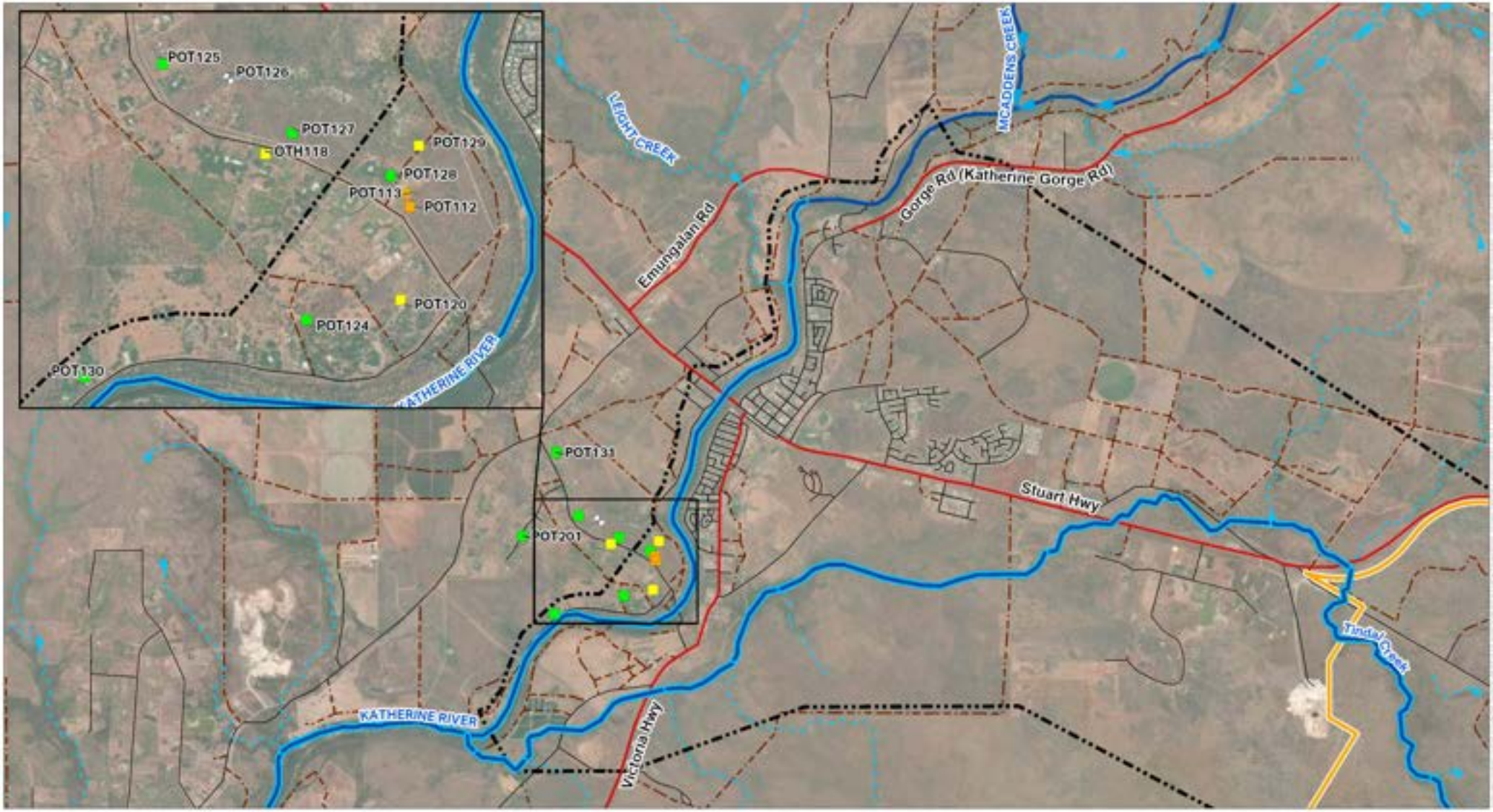

FIGURE F7.11: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS FEBRUARY 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 0.07 - 10
- > Limit of Reporting - 0.07
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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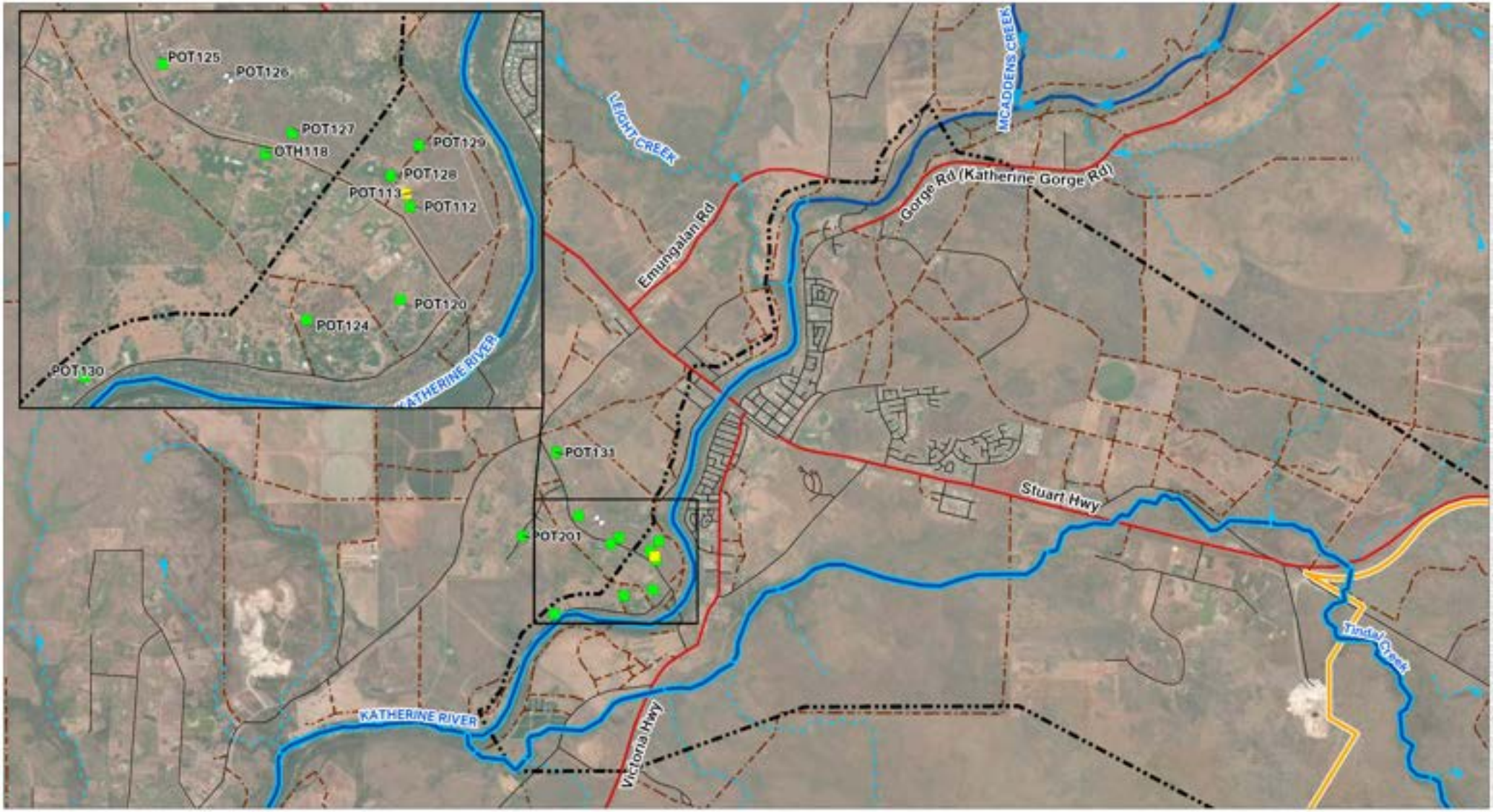

FIGURE F7.12: PFOA CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS FEBRUARY 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > Limit of Reporting - 0.56
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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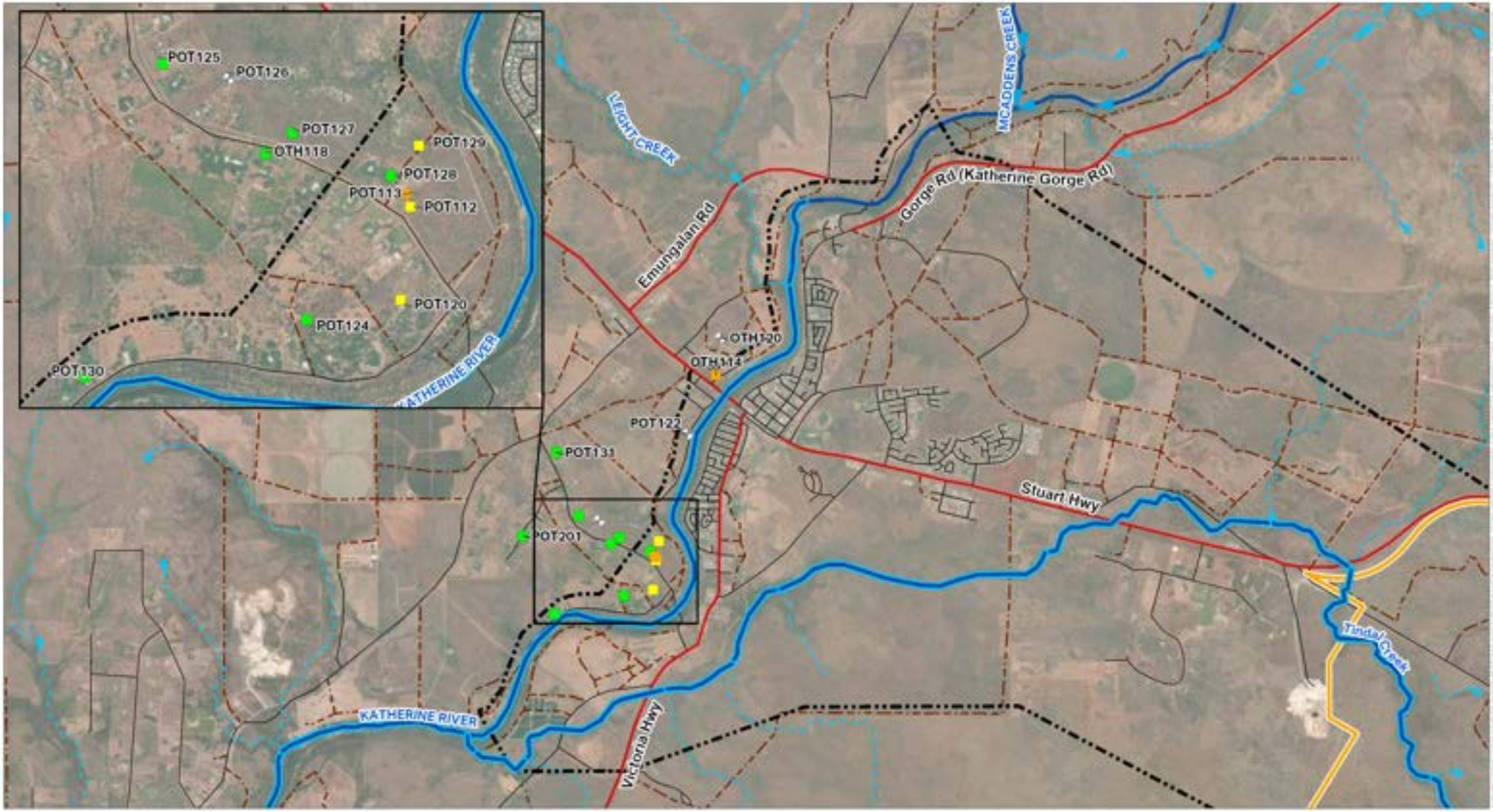

FIGURE F7.13: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS MARCH 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 0.07 - 10
- > Limit of Reporting - 0.07
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

AECOM

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RAAF BASE TINDAL

DEPARTMENT OF DEFENCE

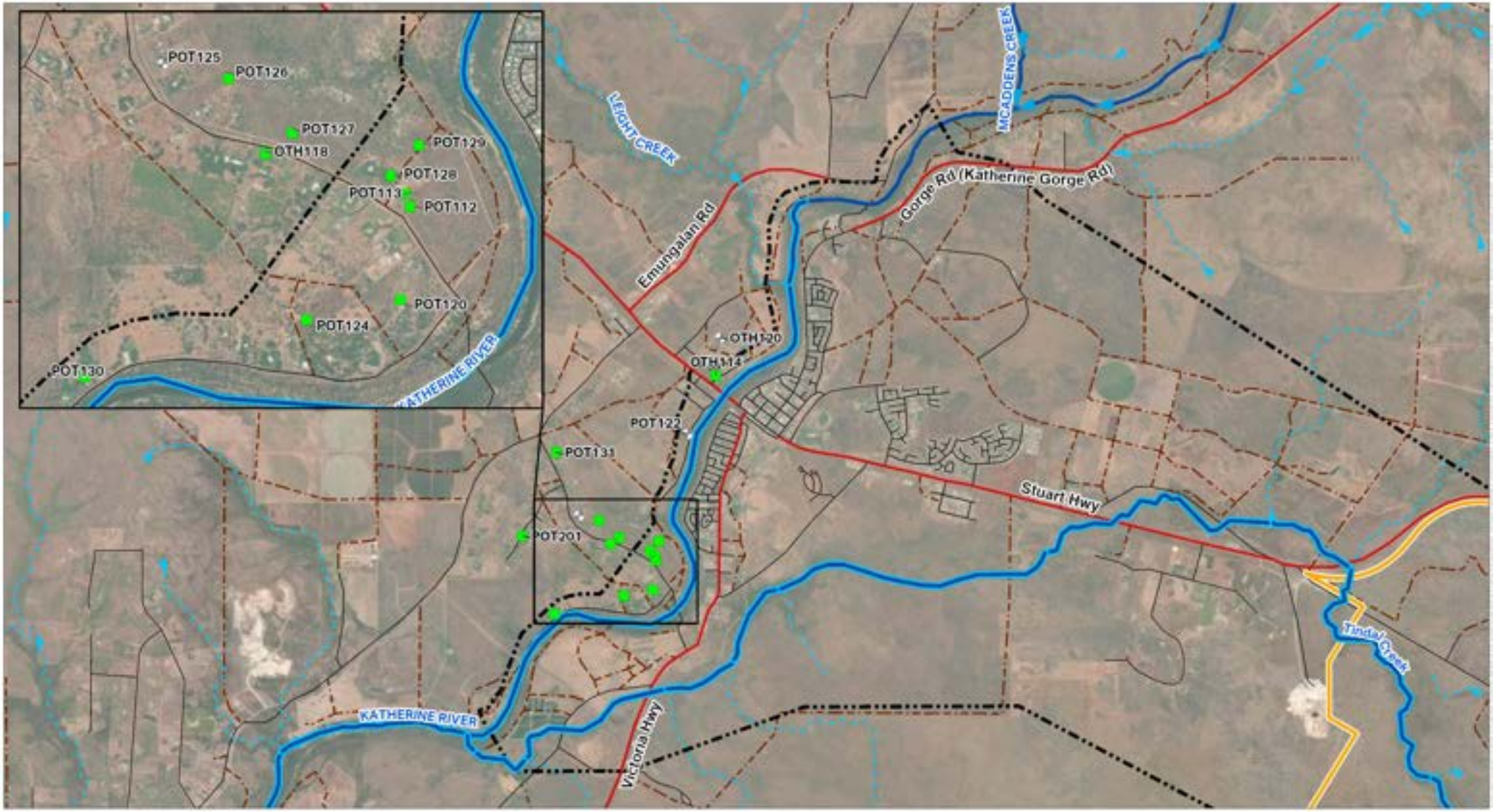

FIGURE F7.14: PFOA CONCENTRATIONS FOR ON AND OFF-BASE GROUNDWATER LOCATIONS MARCH 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > Limit of Reporting - 0.56
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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DEPARTMENT OF DEFENCE

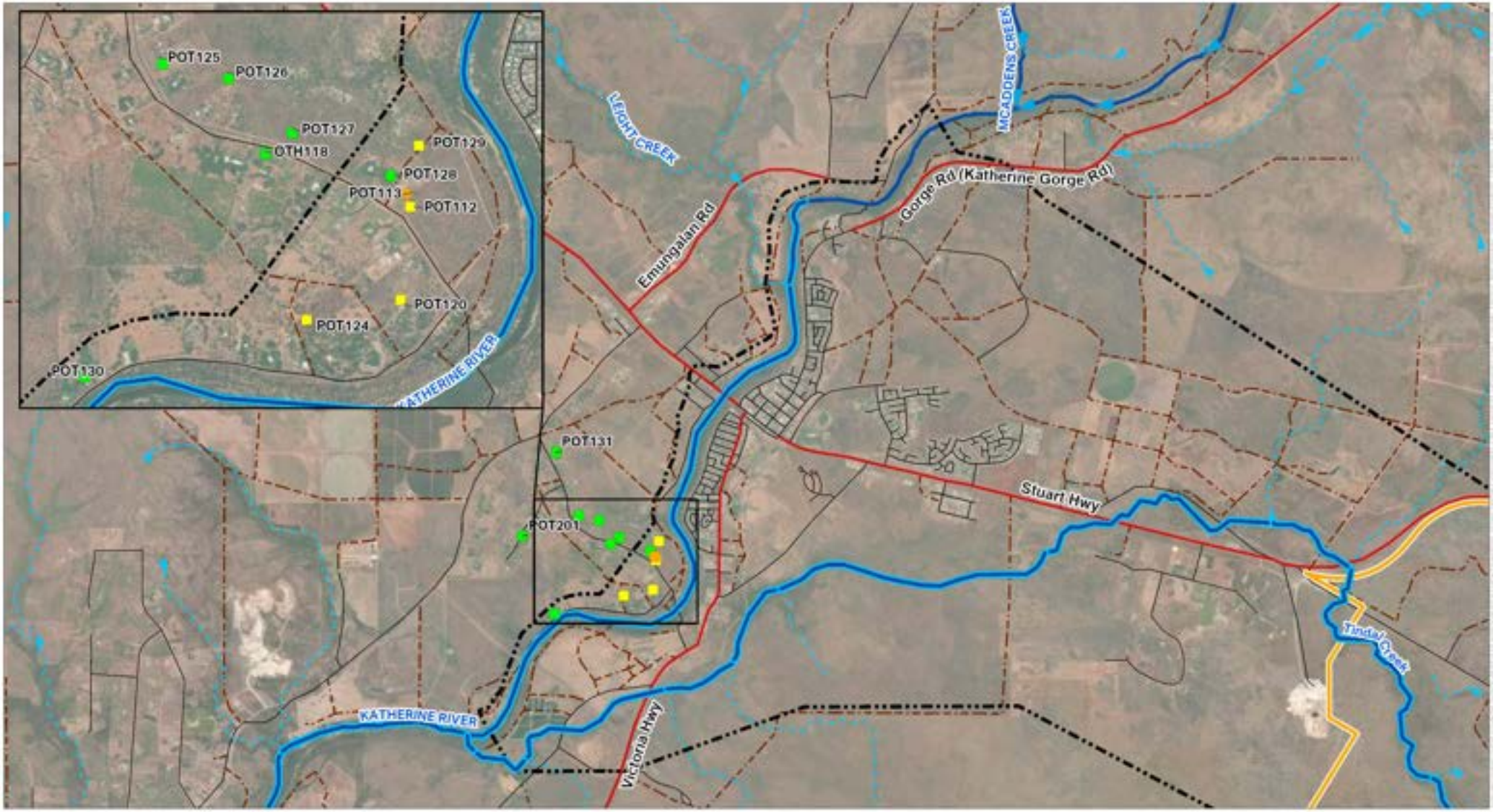

FIGURE F7.15: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS APRIL 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 0.07 - 10
- > Limit of Reporting - 0.07
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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Ongoing Monitoring Report 2024
RAAF BASE TINDAL

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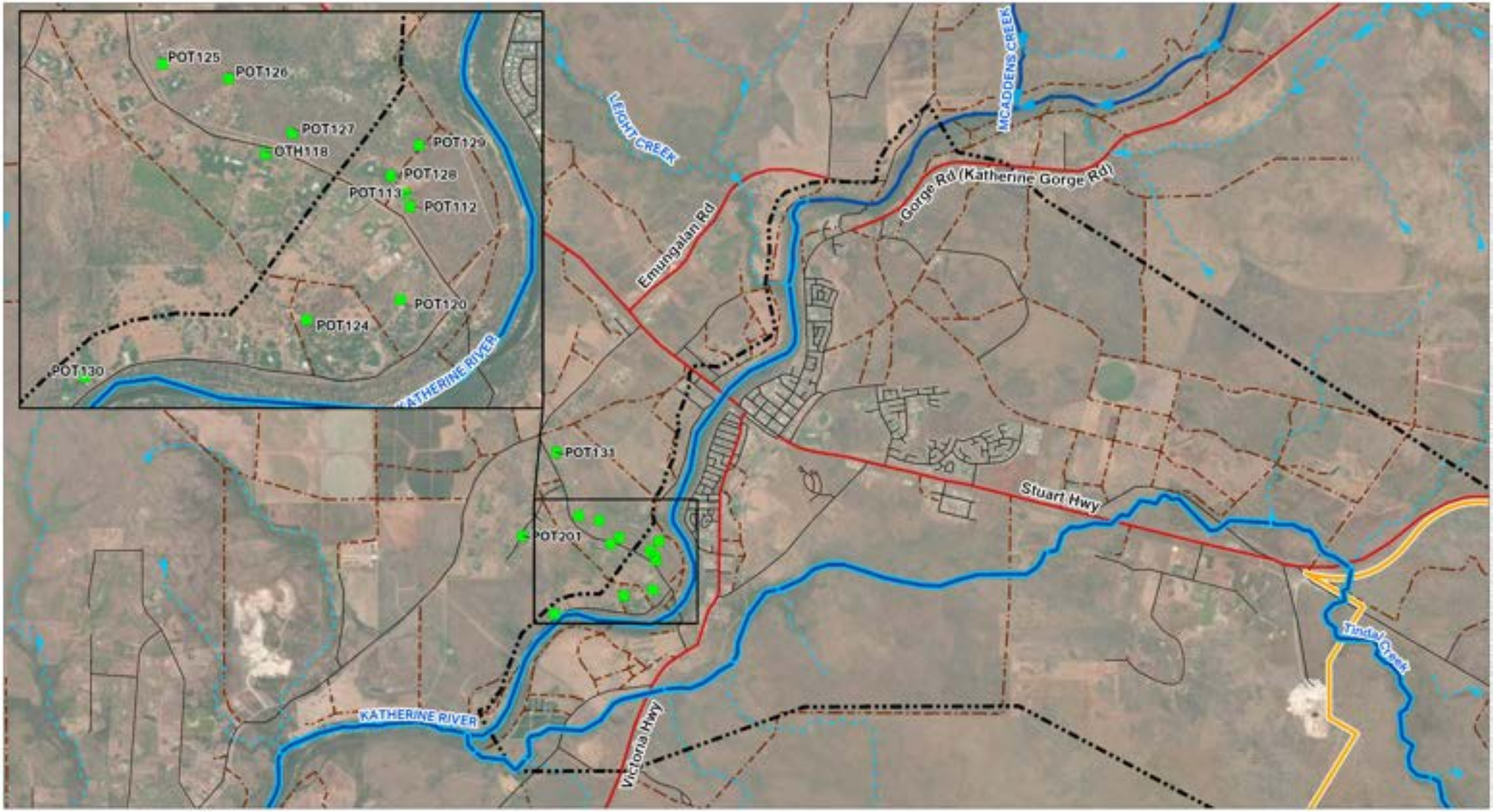

FIGURE F7.16: PFOA CONCENTRATIONS FOR OFF-BASE GROUNDWATER LOCATIONS APRIL 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage

PFOA (µg/L)

- > 50
- > 10 - 50
- > 0.56 - 10
- > Limit of Reporting - 0.56
- < Limit of Reporting
- Groundwater Monitoring Location (Not Sampled)

Note:

OTH117, OTH119, POT114, POT121, POT198 not shown for privacy reasons.

N

0 1 2 km

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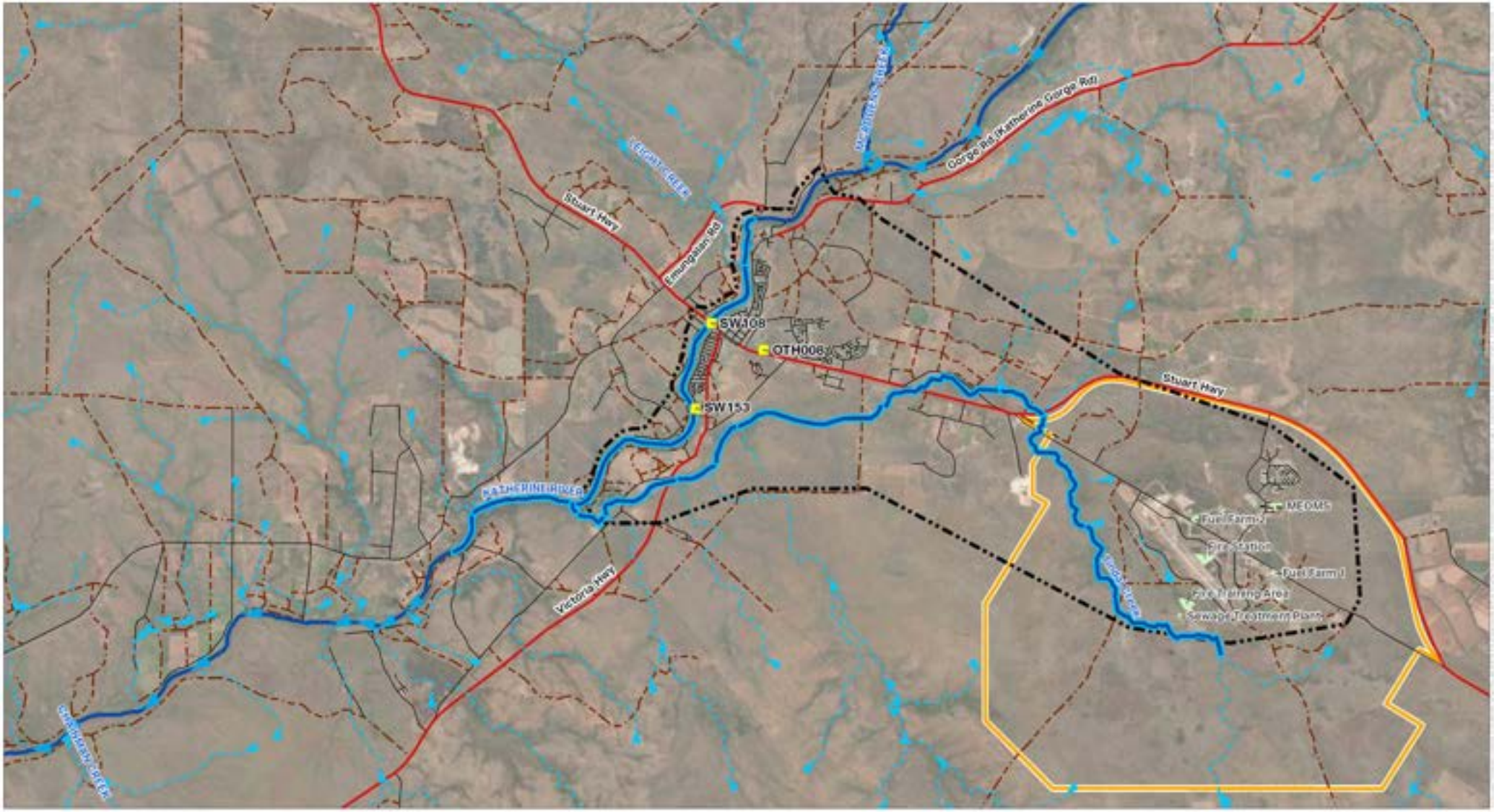

FIGURE F8.1: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE SURFACE WATER LOCATIONS JULY 2023 SAMPLING EVENT

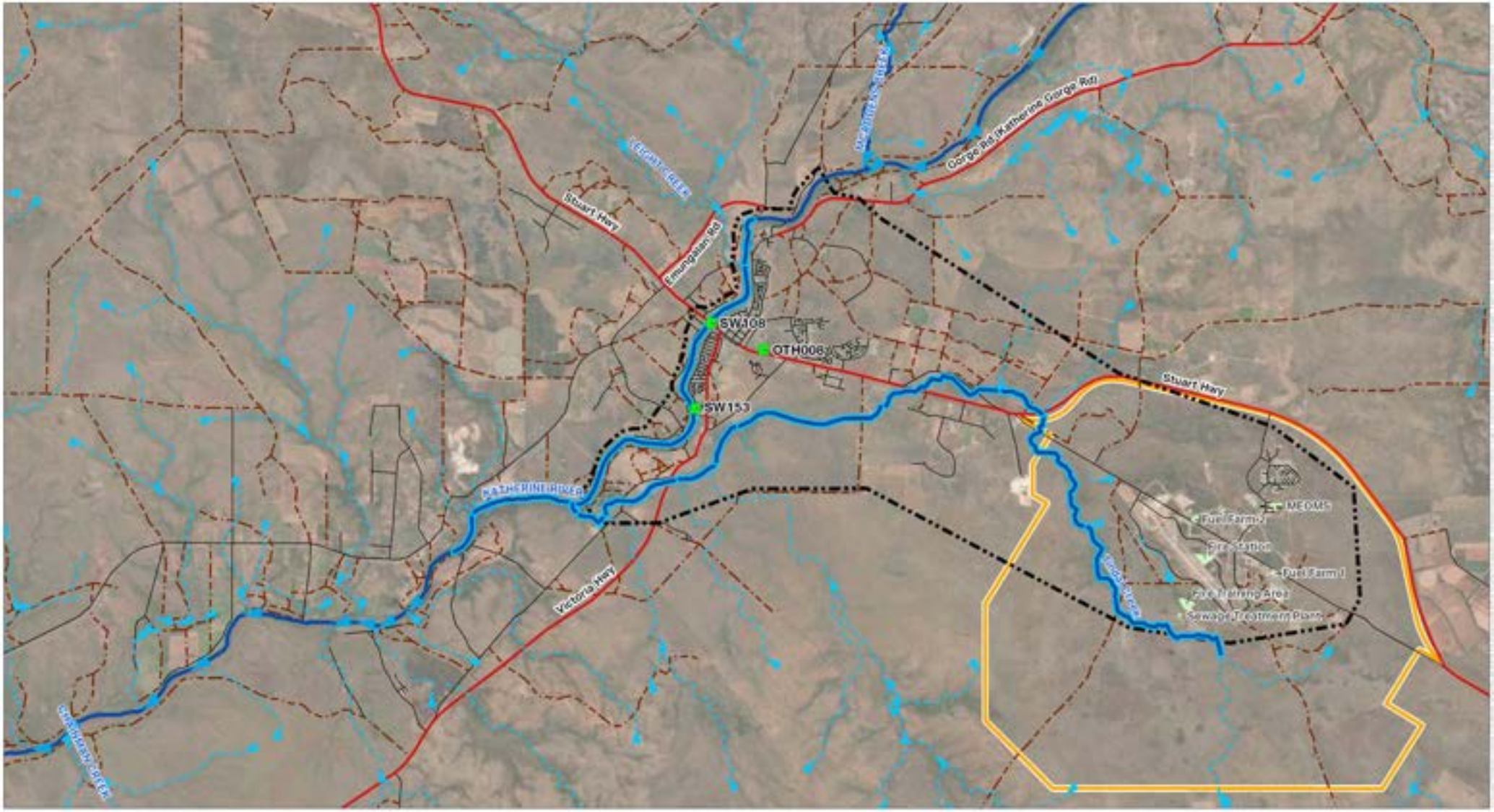

FIGURE F8.2: PFOA CONCENTRATIONS FOR OFF-BASE SURFACE WATER LOCATIONS JULY 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOA (µg/L)

- > 50
- > 10 - 50
- > Limit of Reporting - 10
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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RAAF BASE TINDAL

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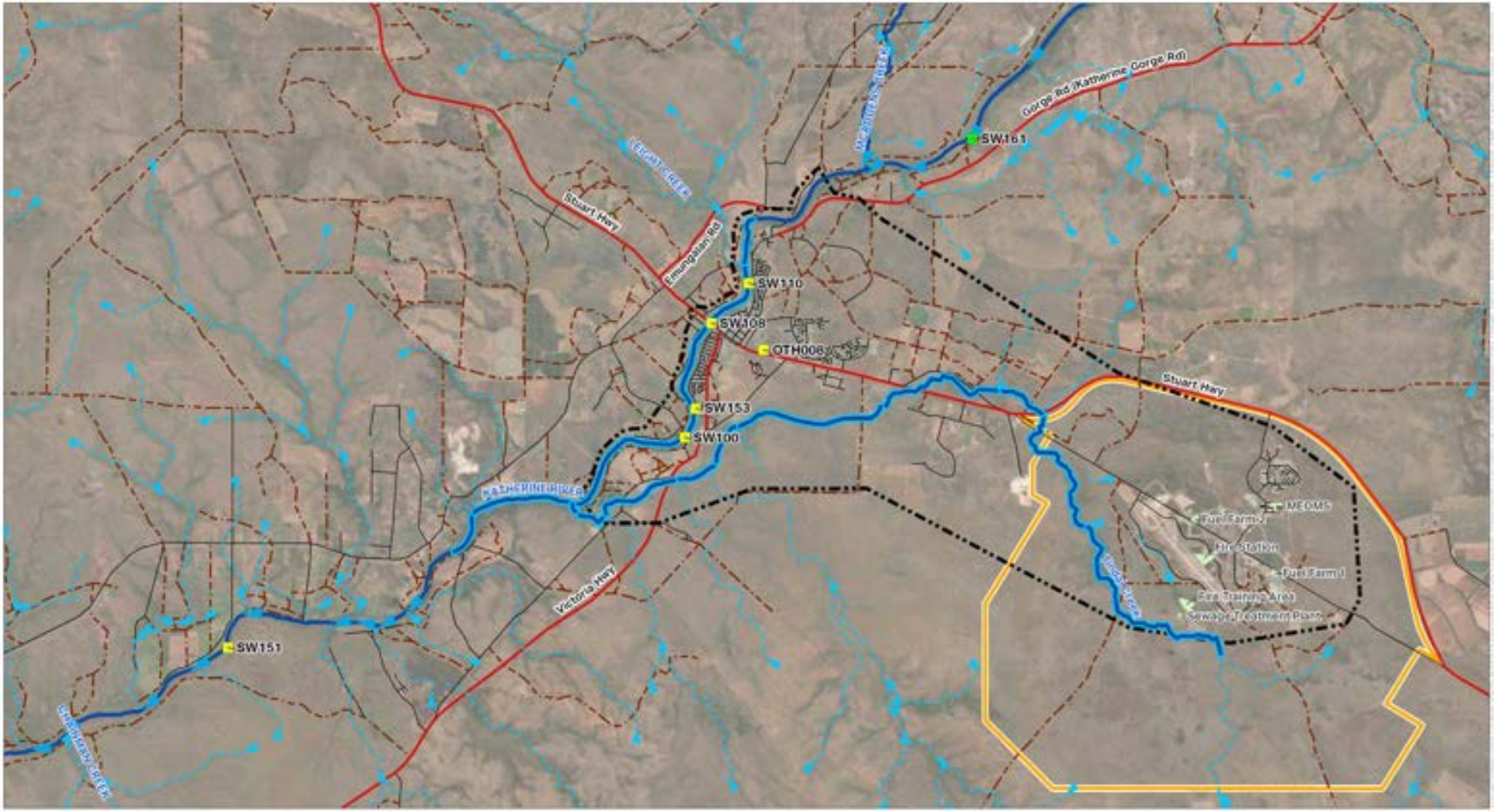

FIGURE F8.3: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE SURFACE WATER LOCATIONS SEPTEMBER/OCTOBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > Limit of Reporting - 2
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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RAAF BASE TINDAL

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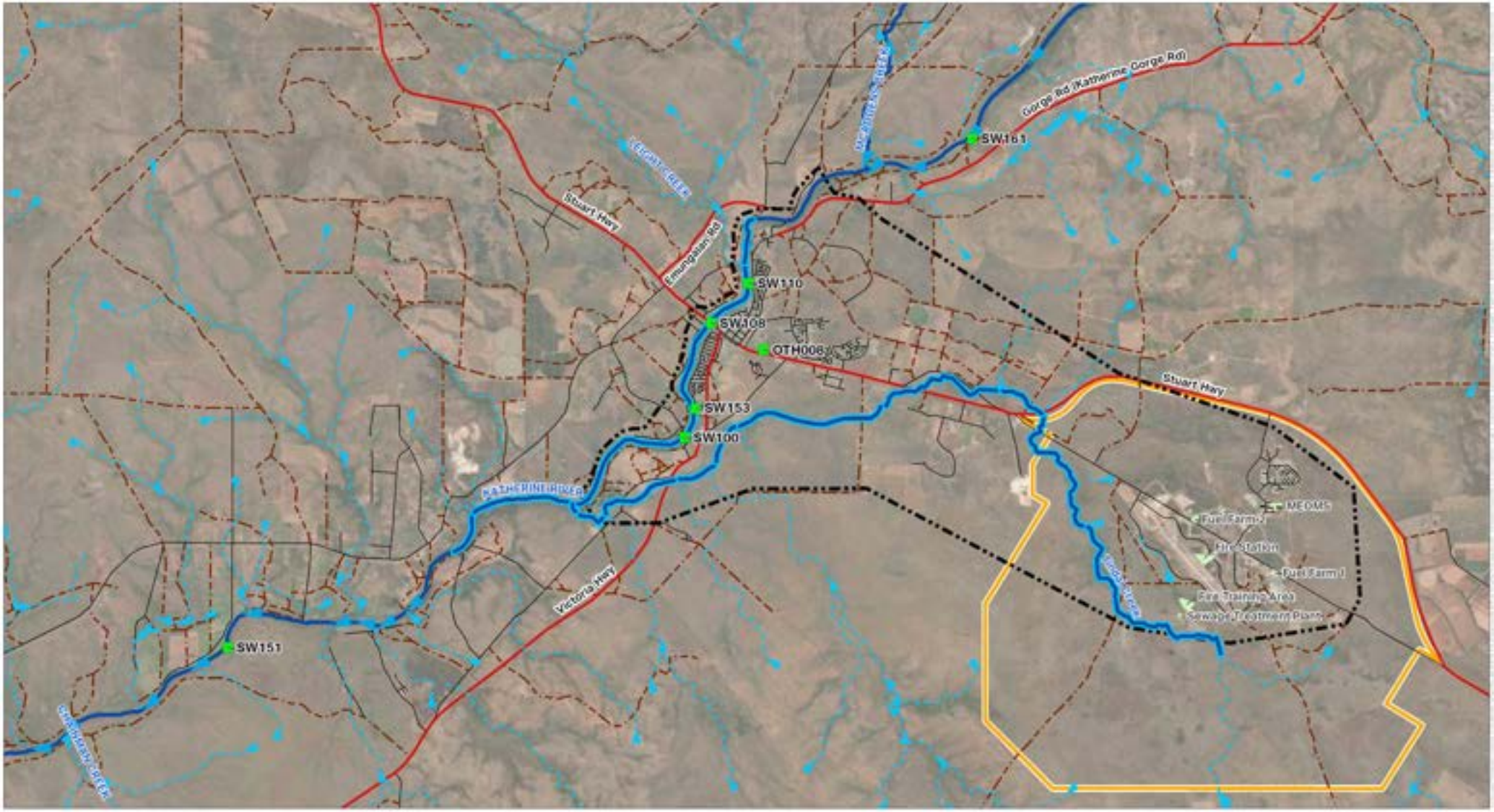

FIGURE F8.4: PFOA CONCENTRATIONS FOR OFF-BASE SURFACE WATER LOCATIONS SEPTEMBER/OCTOBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas
- PFOA (µg/L)
  - > 50
  - > 10 - 50
  - > Limit of Reporting - 10
  - < Limit of Reporting
  - Surface Water Location (Not Sampled)

N

0 1 2 3 km

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RAAF BASE TINDAL

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DEPARTMENT OF DEFENCE

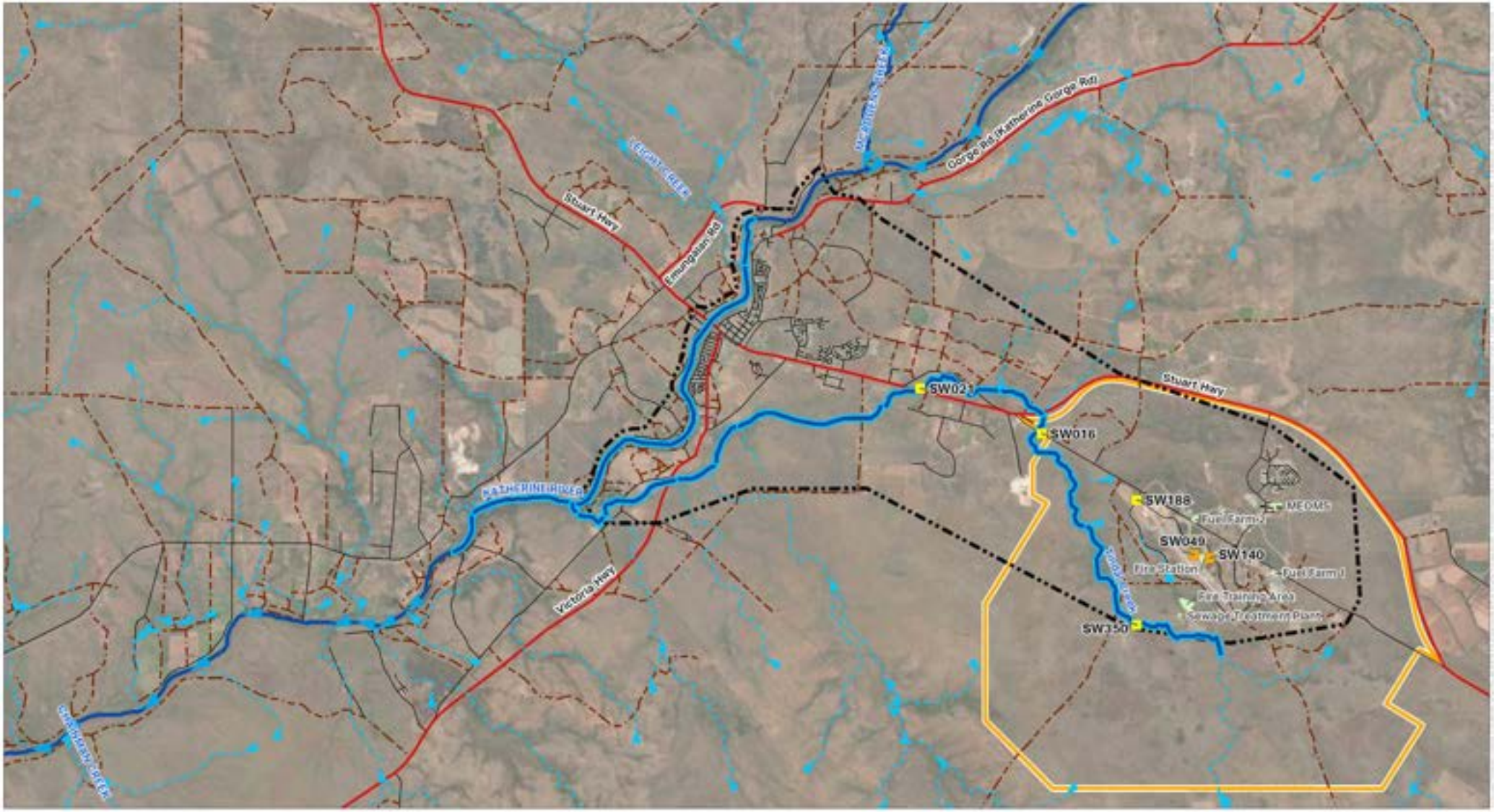

FIGURE F8.5: SUM OF PFOS + PFHxS CONCENTRATIONS FOR ON AND OFF-BASE SURFACE WATER LOCATIONS NOVEMBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > Limit of Reporting - 2
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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Ongoing Monitoring Report 2024
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DEPARTMENT OF DEFENCE

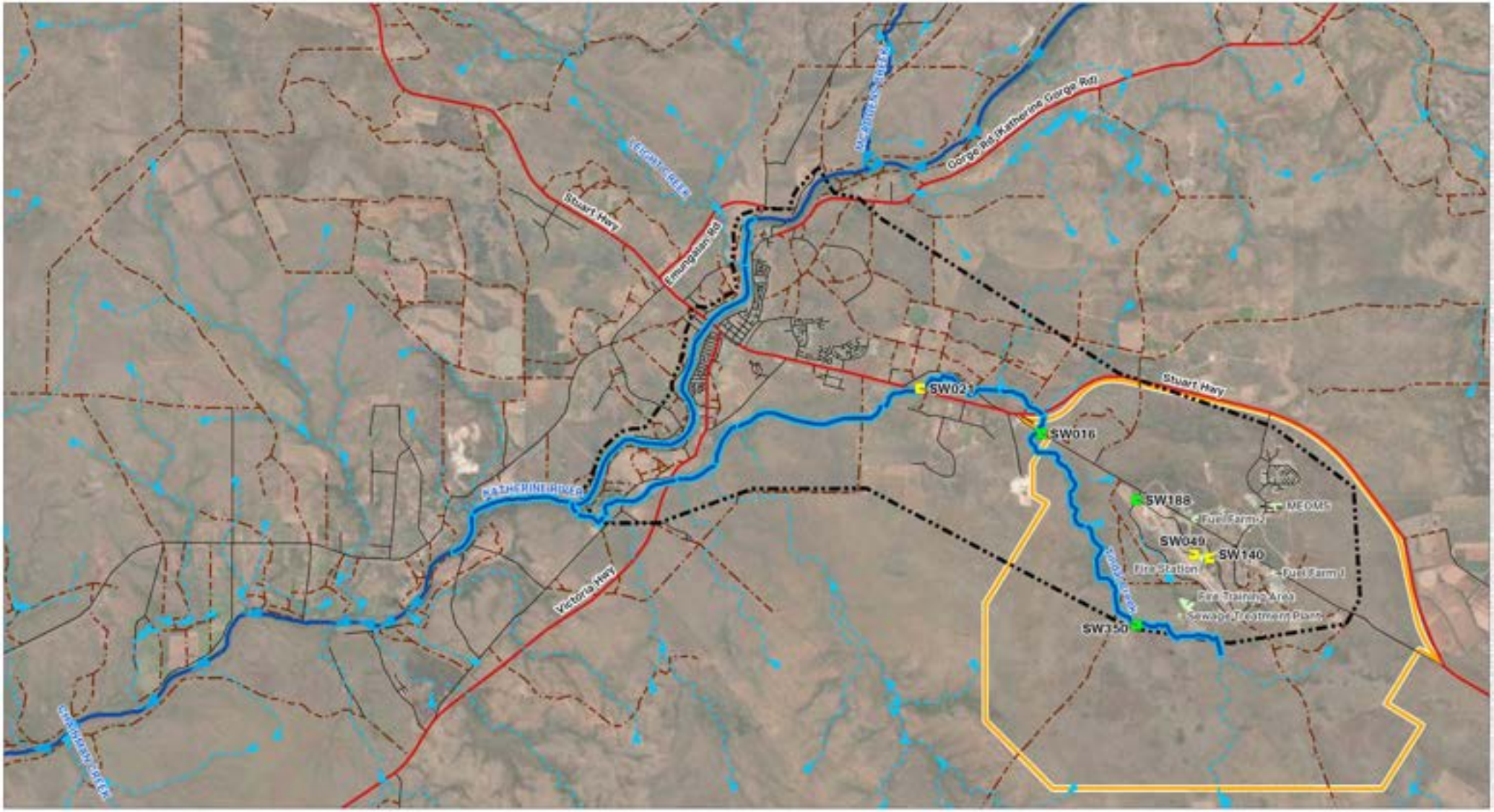

FIGURE F8.6: PFOA CONCENTRATIONS FOR ON AND OFF-BASE SURFACE WATER LOCATIONS NOVEMBER 2023 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOA (µg/L)

- > 50
- > 10 - 50
- > Limit of Reporting - 10
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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RAAF BASE TINDAL

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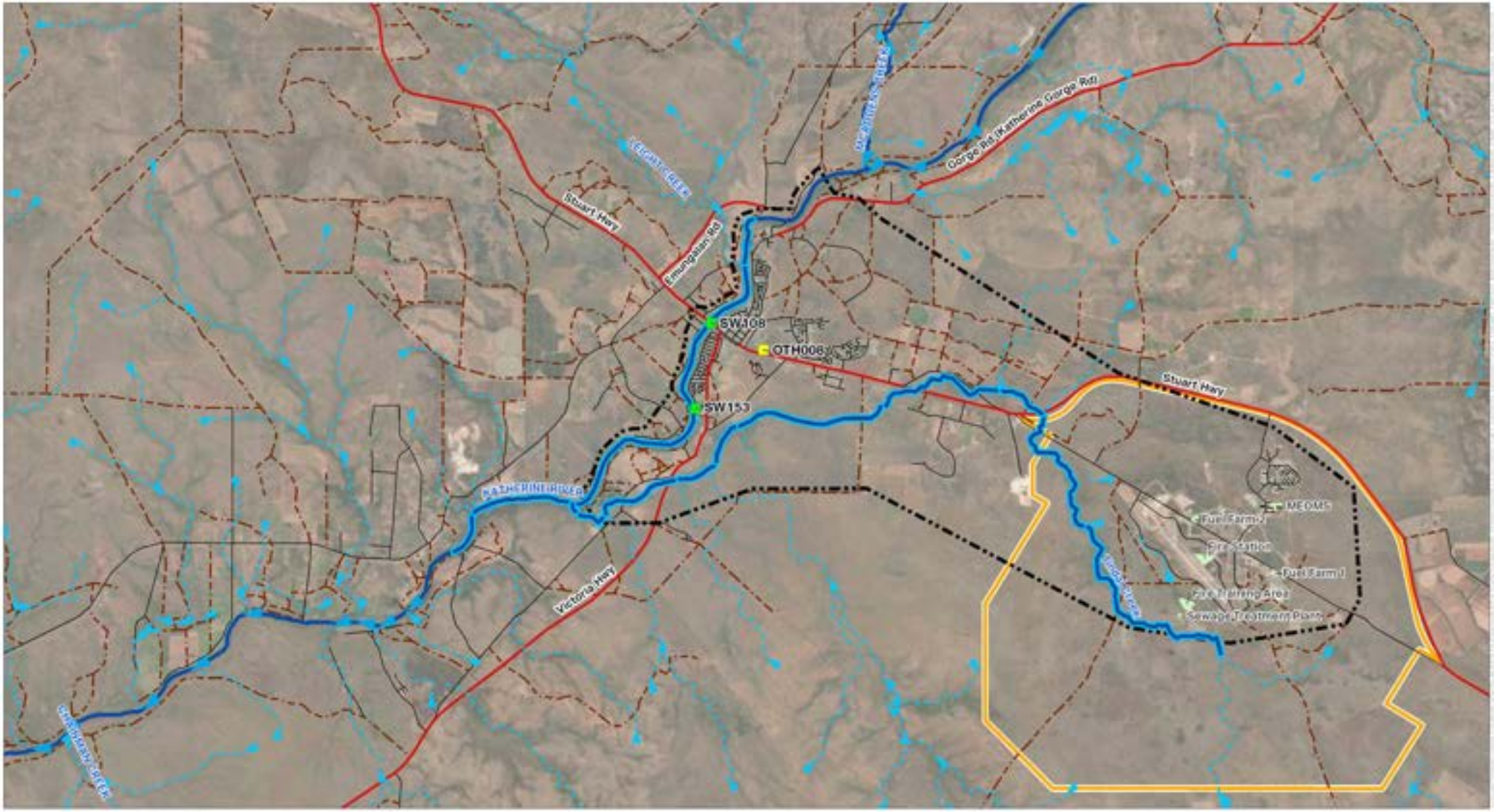

FIGURE F8.7: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE SURFACE WATER LOCATIONS JANUARY 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > Limit of Reporting - 2
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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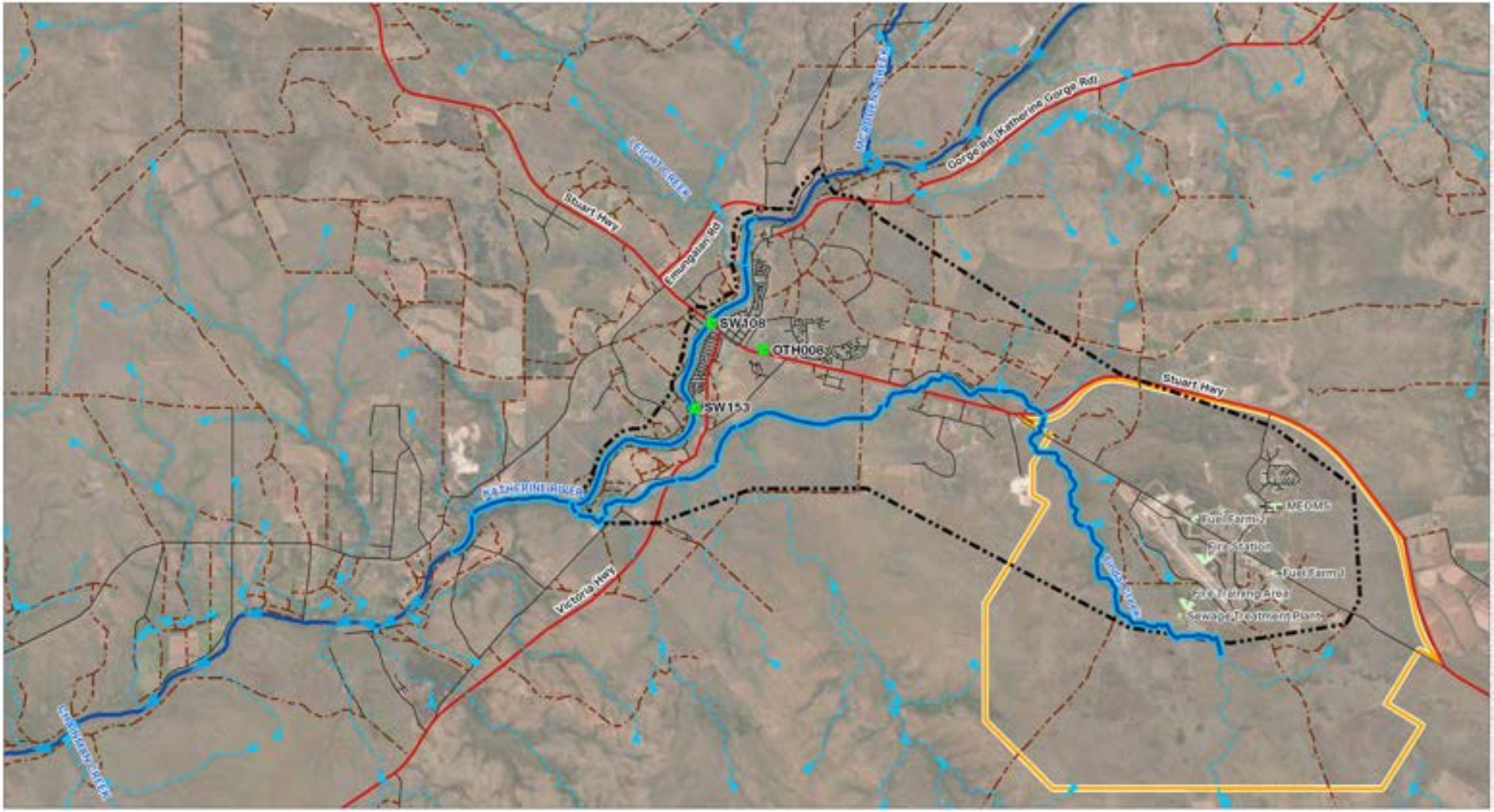

FIGURE F8.8: PFOA CONCENTRATIONS FOR OFF-BASE SURFACE WATER LOCATIONS JANUARY 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOA (µg/L)

- > 50
- > 10 - 50
- > Limit of Reporting - 10
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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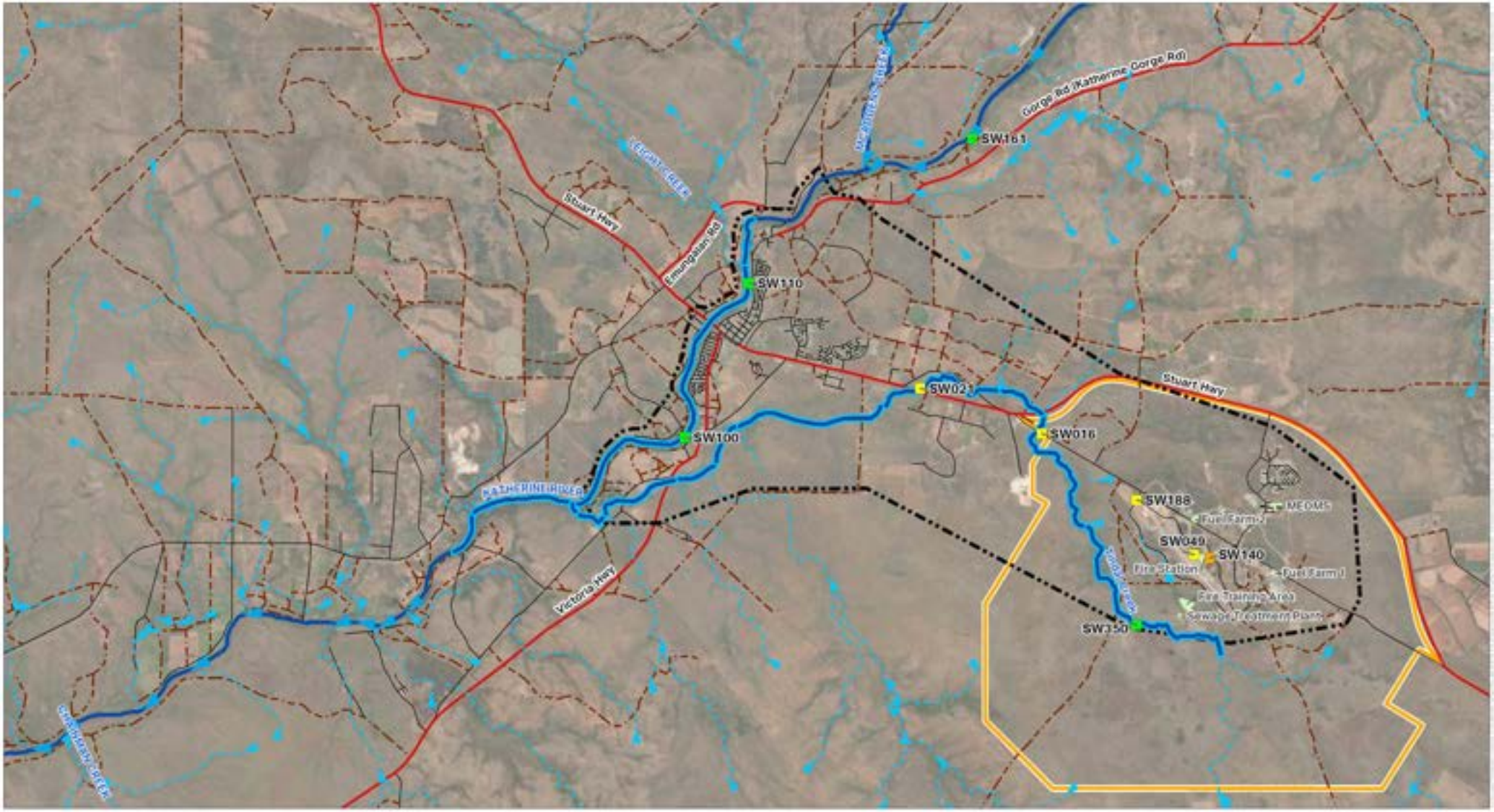

FIGURE F8.9: SUM OF PFOS + PFHxS CONCENTRATIONS FOR ON AND OFF-BASE SURFACE WATER LOCATIONS MARCH 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > Limit of Reporting - 2
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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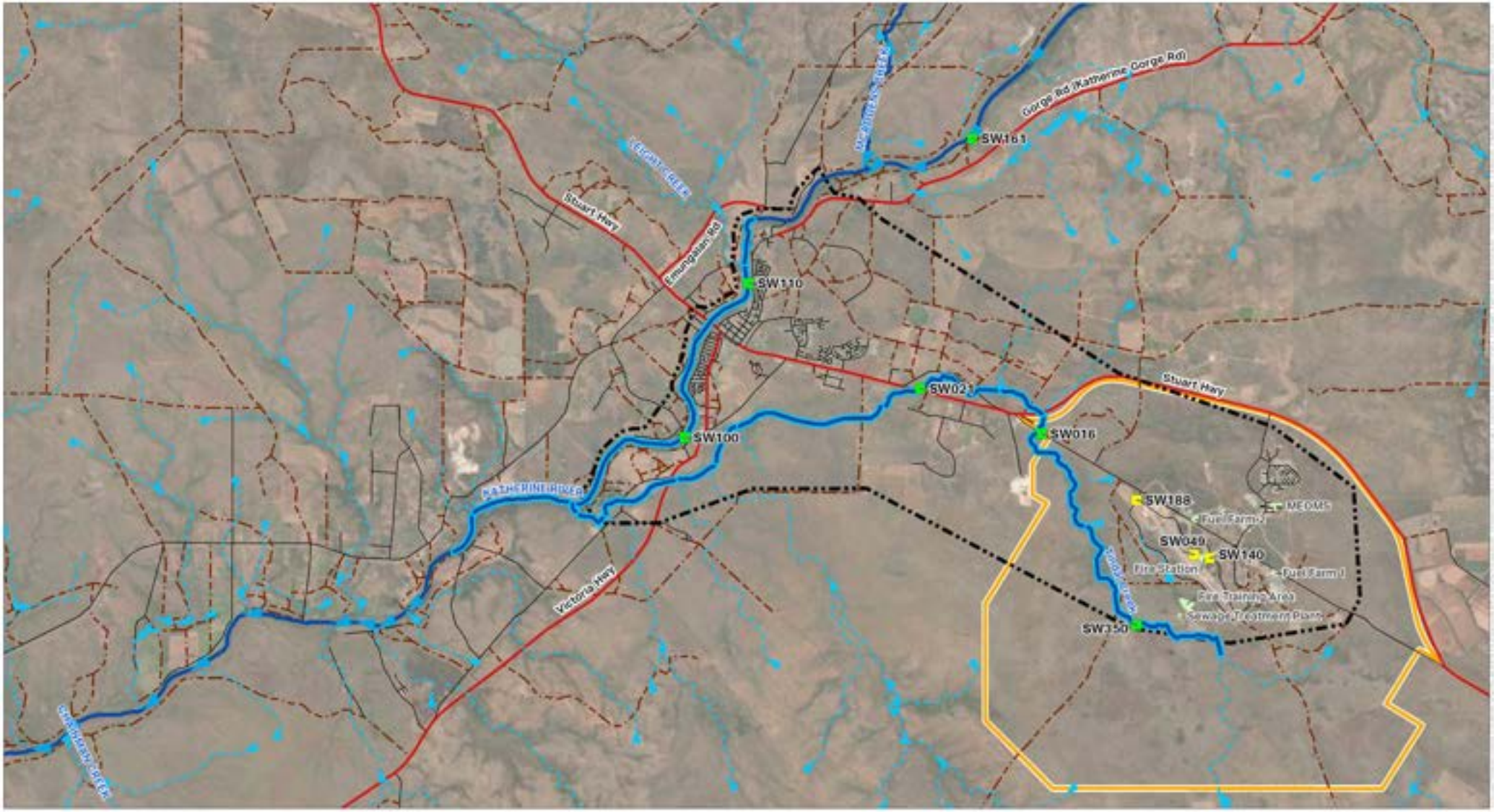

FIGURE F8.10: PFOA CONCENTRATIONS FOR ON and OFF-BASE SURFACE WATER LOCATIONS MARCH 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOA (µg/L)

- > 50
- > 10 - 50
- > Limit of Reporting - 10
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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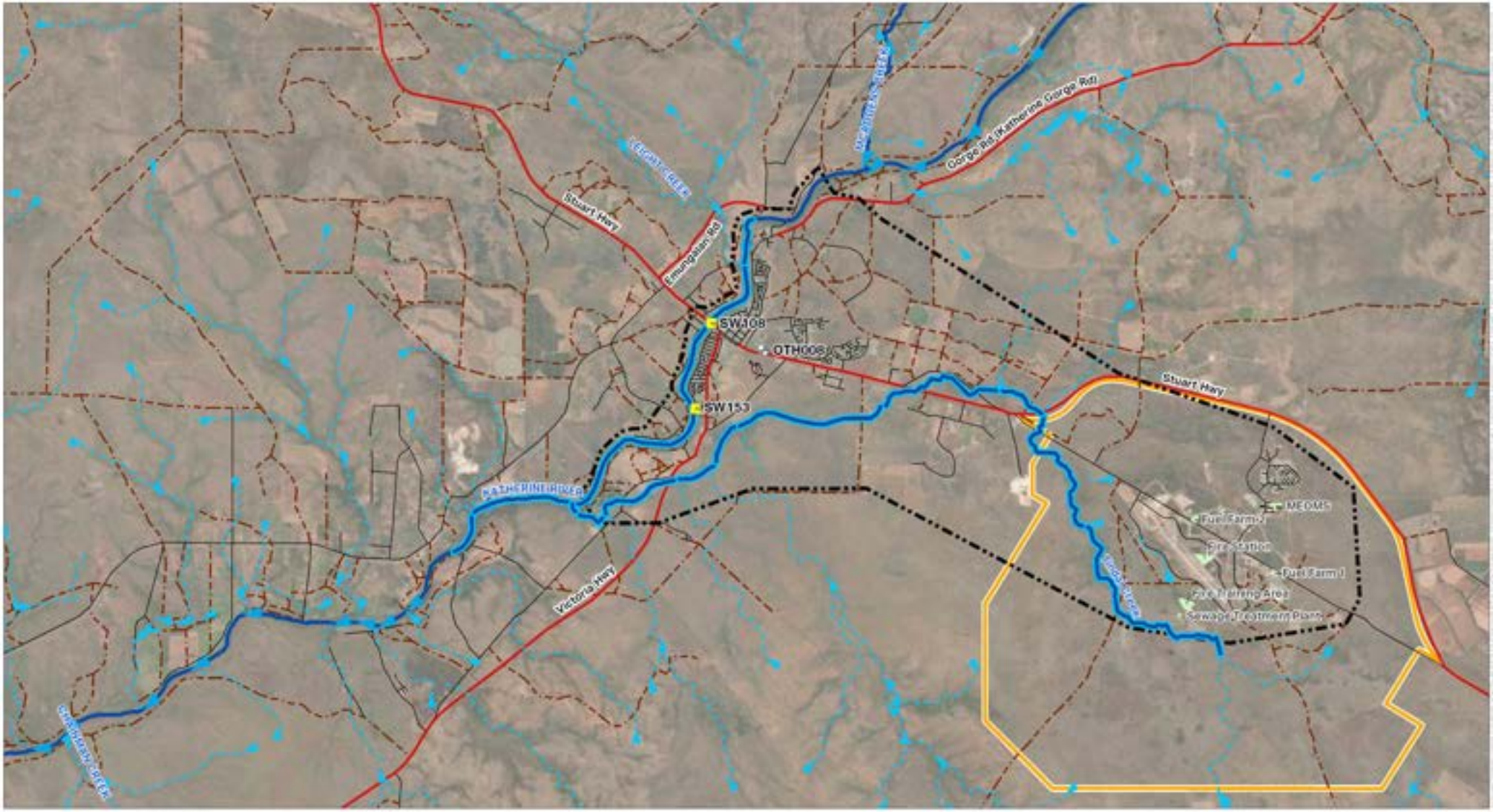

FIGURE F8.11: SUM OF PFOS + PFHxS CONCENTRATIONS FOR OFF-BASE SURFACE WATER LOCATIONS APRIL 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOS + PFHxS (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > Limit of Reporting - 2
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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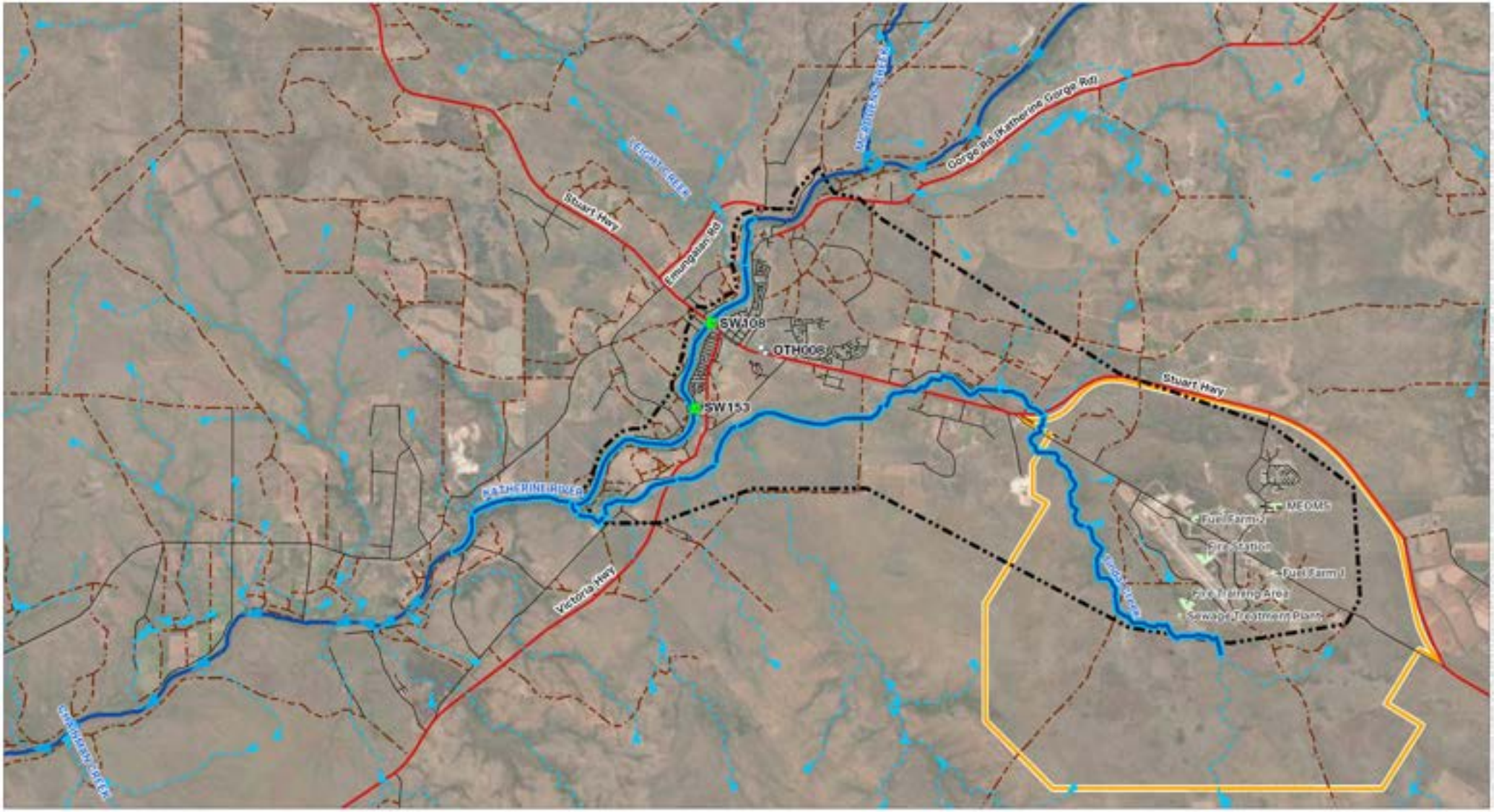

FIGURE F8.12: PFOA CONCENTRATIONS FOR OFF-BASE SURFACE WATER LOCATIONS APRIL 2024 SAMPLING EVENT

Legend

- RAAF Base Tindal
- Groundwater Management Area
- Zone 3 - Surface Water Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Source Areas

PFOA (µg/L)

- > 50
- > 10 - 50
- > 2 - 10
- > Limit of Reporting - 2
- < Limit of Reporting
- Surface Water Location (Not Sampled)

N

0 1 2 3 km

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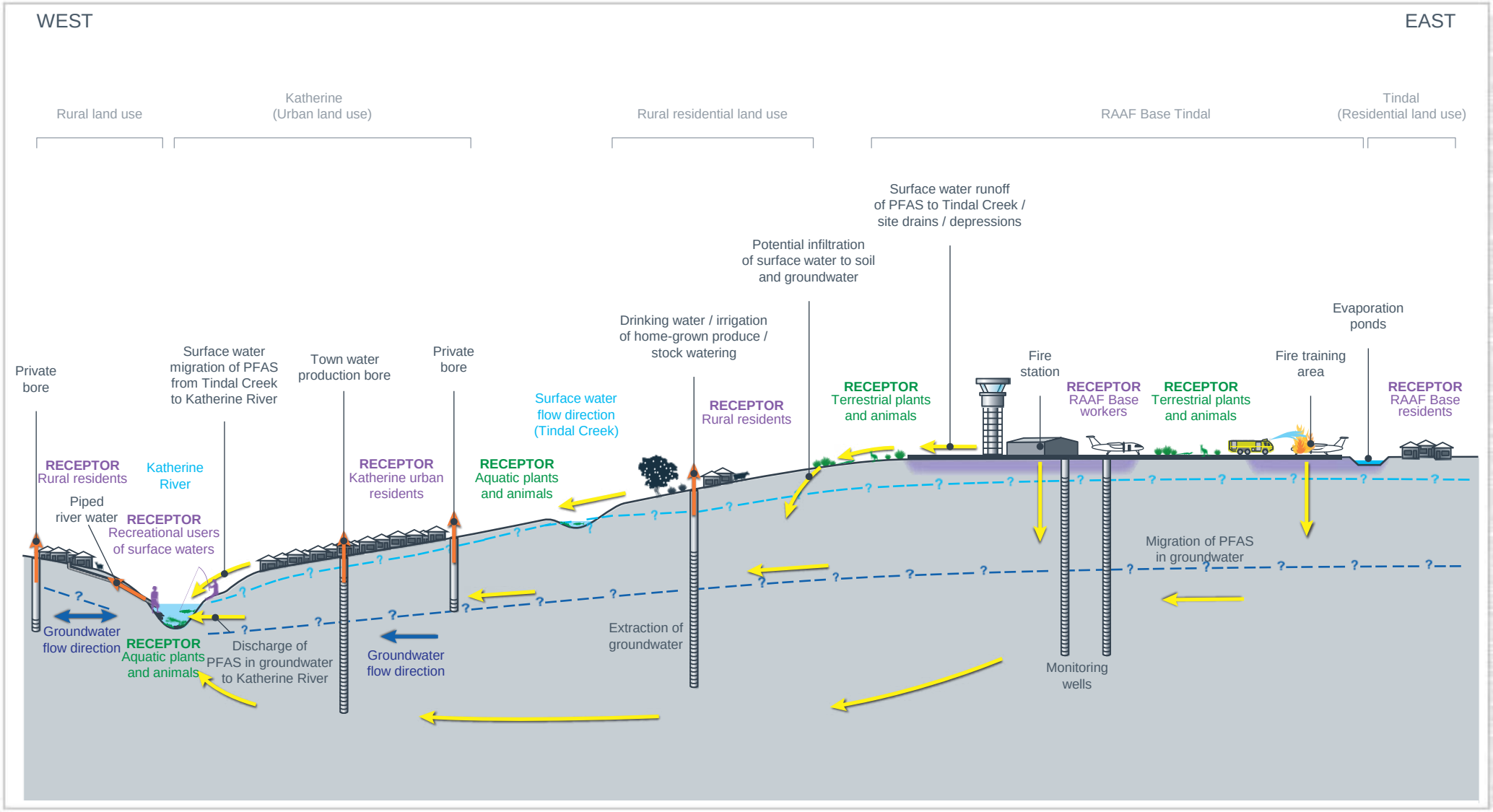

FIGURE F9: Conceptual Site Model

Legend

- RAAF Base Tindal PFAS source areas
- Potential PFAS migration pathway
- Potential transport pathway to receptor
- Groundwater movement
- Approximate end of wet season standing water level (SWL)
- Approximate end of dry season standing water level (SWL)

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RAAF BASE TINDAL

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Appendix B

SAQP and Factual Reports

Prepared for
Department of Defence, Directorate of PFAS Remediation, Environment and Engineering Branch
ABN: 68 706 814 312

DRAFT

Sampling Analysis and Quality Plan

05-Dec-2023
PFAS OMP - RAAF Base Tindal
Doc No. 60612561_OMP_RAAF Base Tindal_SAQP_20231108

D R A F T

Sampling Analysis and Quality Plan

Client: Department of Defence, Directorate of PFAS
Remediation, Environment and Engineering Branch

ABN: 68 706 814 312

Prepared by

,

05-Dec-2023

Job No.: 60612561

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

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Quality Information

Document Sampling Analysis and Quality Plan

Ref 60612562_RAAF Tindal_OMP_SAQP_Rev 6_240215.docx

Date 05-Dec-2023

Prepared by [redacted]

Reviewed by [redacted]

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
6	5-Dec-2023	Revision 6 for Review	[redacted] Principal Environmental Scientist	[redacted]

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1.0 Introduction

1.1 Preamble

In July 2019, AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement routine monitoring programs for per- and poly-fluoroalkyl substances (PFAS) over a three-year period at selected Defence Bases within the following four Defence regions:

- New South Wales and Jarvis Bay Territories (excluding Riverina) Region (NSW & ACT)
- North Queensland Region (North QLD)
- South Queensland Region (South QLD)
- South Australia and Northern Territory Region (SA & NT).

This Sampling Analysis and Quality Plan (SAQP) has been prepared in relation to the proposed Ongoing Monitoring Plan (OMP) works at the RAAF Base Tindal (the Base) (**Figure 1, Appendix B**) in the **NT & SA Region**. RAAF Base Tindal is located approximately 15 kilometres south of Katherine and approximately 320km south-east of Darwin in the Northern Territory.

1.2 SAQP Objectives

The objectives of this SAQP are to:

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

1.3 Scope of Works

To meet the OMP (Department of Defence, 2021a) objectives, the following scope of works are for a three-year monitoring period (2019 to 2022) as detailed in the Base OMP (Department of Defence, 2021a). The scope of works has been extended an additional two years to July 2024 and has been updated to address identified data gaps and recommendations from previous sampling rounds. This is reflected in Table 1 and will be implemented for the remaining duration of the OMP (Department of Defence, 2021a).

Table 1 Scope of Works – Yearly Monitoring Commitment

Sample Matrix	Number of Sample Locations	Frequency	Number of Monitoring Events per Year	Approximate Monitoring Period
Groundwater (off-Base private bores -West of Katherine River)	18 monitoring locations	Monthly during wet season and once in dry season.	7	• Wet season (November – April) • Dry season (August)
	3 monitoring locations	Biannual	2	• Late dry season (September – October) • Late wet season (February – March)
Groundwater (on- and off-Base - other)	28 monitoring locations	Annual	1	• Late dry season (October)
Surface water (off-Base)	3 monitoring locations	Quarterly	4	• Mid wet season (January)

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Sample Matrix	Number of Sample Locations	Frequency	Number of Monitoring Events per Year	Approximate Monitoring Period
				• Late wet season (April) • Mid dry season (July) • Late dry season (October)
Surface water (on- Base and Tindal Creek)	6 monitoring location	Twice in wet season	2	• Early mid wet season and mid late wet season. Depending on when water is observed in on-Base drains and Tindal Creek.
Surface water (off-Base – Katherine River)	3 monitoring locations	Biannual	2	• Late dry season (September-October) • Late wet season (February-March)
Surface water (off-Base – Katherine River)	1 monitoring location	Annual (collected during biota sampling)	1	• Annual sampling (August to October)
Aquatic biota (off-Base)	2 monitoring locations	Annual	1	• Second half of dry season (August to October

All samples collected will be analysed for the standard PFAS Laboratory Suite at a NATA accredited laboratory.

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2.0 Base Identification

2.1 Base Details

The Base is an active airbase and home to several squadrons. The Base features include:

- shared domestic and Defence airfield and associated buildings
- residential housing and infrastructure
- surface drains and other water bodies both on-Base and off-Base
- range training areas and firefighting training areas.

RAAF Base Tindal is located approximately 15 kilometres outside of Katherine and approximately 320km south-east of Darwin in the NT (**Figure 1, Appendix B**). The Stuart Highway extends north of the site, pastoral land surrounds RAAF Base Tindal by north, east and westerly directions and the Cutta-Cutta Caves Nature Park to the south-eastern boundary and adjoins the Base and Nature Park in the south.

The Management Area comprises of three zones that have been outlined in the PFAS Management Area Plan (PMAP) (Department of Defence, 2019):

- Zone 1: Groundwater above recreational water criteria
- Zone 2: Groundwater above drinking water criteria
- Zone 5: Groundwater below criteria.

2.2 Conceptual Site Model

The Conceptual Site Model (CSM) is presented in the Human Health Risk Assessment (HHRA) Report (Coffey 2018a) and the Supplementary Detailed Site Investigation (DSI) (Coffey, 2018c) which summarises the linkages between sources, exposure pathways and receptors and PFAS extents.

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3.0 Data Quality Assessment

3.1 Data Quality Objectives

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

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

The process of establishing appropriate DQOs is defined according to the following seven steps (Table 2):

Table 2 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

PFAS contamination at the Base has led to the contamination of soil, groundwater and surface water. PFAS has been measured within biota from Tindal Creek and the Katherine River. Based on the data collected between April 2017 and May 2018, assessments of risk to human health and ecology were completed. Monitoring of the concentrations of PFAS in the environment is required to review if the advice developed based on previous data and risk assessments remains relevant, appropriate and protective.

3.1.2 Step 2 – Identify the Goal of the Study

The overall goal of the study is to establish a systematic routine groundwater, surface water and biota sampling and analysis program to provide current and ongoing information on the distribution of PFAS contaminants of potential concern in groundwater, surface water and biota 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 biota within the Management Area

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- 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 environmental 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 biota data collected and analysed for PFAS
- groundwater 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 limited to the Management Area shown in Figure 1
- the sampling completed as part of the OMP (Department of Defence, 2021a) will be limited to groundwater, surface water and biota at the frequencies defined in Section 4.0
- the monitoring has occurred over an initial period of three years with the inclusion of an additional two-year extension through July 2024, the need for ongoing monitoring thereafter will be considered.

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 (Department of Defence, 2022).
- Analytical method selection for PFAS is based on achieving appropriate laboratory limit of reporting (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, groundwater and biota.
- 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 the selected criteria for surface water or 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 was undertaken after two years of monitoring and is reflected in the 2021 OMP update (will be reviewed again in July 2024.

The decision on the acceptance of the analytical data should 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 Base
- **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 (Department of Defence, 2021a) 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 Base. To address this alternate locations or additional sampling events may be conducted.

  There may be limitations in the data if aspects of the OMP (Department of Defence, 2021a) cannot be implemented, such as:

  - surface water sample locations may be dry at the time of sampling
  - groundwater sampling locations are damaged or destroyed and therefore cannot be sampled
  - biota target specific species may not be able to be caught
  - access to some sampling locations could be being restricted due to operational activities or inaccessible due to weather.

  There may be limitations in the ability to acquire useful and representative data from some sampling locations, for example private landholders’ bores often have dedicated pumps in which may prevent groundwater being sampled from the same section of the formation as has occurred in monitoring bores and purged using the same techniques as being applied in monitoring bores.
- 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.

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- 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 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 (2021b), Defence *Contamination Management Manual (DCMM)*
  - Standards Australia (AS/NZS5667.11–1998) Water Quality – Sampling, part 11: *Guidance on sampling of groundwater*
  - Standards Australia (AS 4482.1-2005)[1] *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 (Department of Defence, 2021) period plus additional two-year extension 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
- 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 3**

[1] AS4482.1-2005 and AS 4482.2-1999 have been withdrawn but are included and used in the plan as a state of knowledge.

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Table 3 Acceptance Criteria for Data Quality Indicators for Sample Analysis

Data Quality Indicators	Acceptance Criteria
Water Samples	
Rinsate Blanks (where decontaminated sampling equipment is used)	Less than the laboratory LOR.
Field Blanks	Less than the laboratory LOR.
Field Intra- and Inter-laboratory duplicates	The RPDs will be assessed as acceptable if less than or equal to 30% as per the NEPM Schedule B3. Where the results show greater than 30% difference a review of the cause will be conducted (NEPM, 2013). It is noted that RPDs that exceed this range may be considered acceptable where: • results are less than 10 times the LOR (no limit) • results are less than 20 times the LOR and the RPD is less than 50% • heterogeneous materials are encountered.
Laboratory duplicates	RPDs less than: • 20% for high level laboratory duplicates (i.e. >20 x LOR) • 50% for medium level laboratory duplicates (i.e. 10 to 20 x LOR).
Laboratory Matrix spikes	Recoveries between 70-130% of the theoretical recovery or as nominated in the laboratory's QC report, based on their historical database.
Laboratory Method blanks	Less than the laboratory LOR.
Laboratory control samples	Recoveries between laboratories specified range for each particular analyte / analytical suite.

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4.0 Sampling Location Rationale and Methodology

The OMP (Department of Defence, 2021a) is presented as **Appendix F** of the RAAF Base Tindal PMAP (Department of Defence, 2019) and identifies the specific inputs required to meet Defence's long-term strategic goals in relation to the management of PFAS contamination at the Base.

The OMP (Department of Defence, 2021a) 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 (Department of Defence, 2021a), with the exception of those points of deviation presented in Section 4.19.

4.1 Proposed Schedule

The key elements of the OMP (Department of Defence, 2021a) are monthly sampling of private bores west of Katherine River during the wet season, sampling of private bores west of Katherine River once during the dry season, quarterly and bi-annual monitoring of groundwater and surface water at select locations, annual monitoring of biota within the Katherine River and annual groundwater monitoring, which includes quarterly and bi-annual events. Private bore sampling west of Katherine River should be conducted in regular monthly intervals. If the first monthly sampling event in November occurs on the 15th of that month, successive months should have sampling conducted within a week of the 15th of the following month and so on until completion of monthly sampling. Bi-annual events are to occur at the end of wet season and end of dry season when groundwater and surface water conditions reflect seasonal influences. Select locations West of the Katherine River will be sampled on a monthly basis over the wet season, and an annual basis during the late dry season due to seasonal variance of historical results. Sampling events and reporting will be conducted in accordance with the following schedule.

Table 4 Proposed Annual Schedule

Season	Event[1]	Sampling Period	Reporting Period
Mid late wet season	**Monthly in Wet Season** groundwater – Private bores in on western side of Katherine River	February, March and April[2].	February – April Factual Report
	Biannual groundwater - On- and off-Base	February - March	
	Biannual surface water – Katherine River		
	Twice in Wet Season surface water – On-Base drains and Tindal Creek	February - April[2]	
	Quarterly surface water – Katherine River, Hot Springs and YMCA pool	April	
Dry Season	**August** groundwater - private bores on western side of Katherine River	August[3]	May – October Factual Report
	Biannual groundwater – On- and off-Base	September - October	
	Biannual surface water – Katherine River		
	Annual aquatic biota and corresponding surface water		

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Season	Event[1]	Sampling Period	Reporting Period
	Quarterly surface water – Katherine River, Hot Springs and YMCA pool	July	
	Quarterly surface water – Katherine River, Hot Springs and YMCA pool	October	
Early mid wet season	**Monthly in Wet Season** groundwater – Private bores on western side of Katherine River	November, December and January	November - January Factual Report
	Twice in Wet Season surface water – On-Base drains and Tindal Creek	November and December	
	Quarterly surface water – Katherine River, Hot Springs and YMCA pool	January	

1 = monitoring locations for each event are located in Appendix B.
2 = results from April are reported in the April – June Factual Report.
3 = results from August are reported in August – October Factual Report.

4.2 Access Requirements for Sampling on RAAF Base Tindal

4.2.1 Access Requirements for Sampling on-Base

A range of access requirements exist to gain access to the appropriate areas for the collection of groundwater and surface water samples. Initiating contact with RAAF Base Tindal no less than two weeks prior to sampling is necessary to ensure all access requirements are satisfied and approved by Base Management.

To gain access to RAAF Base Tindal each field team member must obtain baseline clearance from Defence and receive a Defence Common Access Card (DCAC), which allows unescorted entry to the Base. Field team members without baseline clearance and DCAC's will need to be escorted by a field team member that has escort authority associated with their DCAC or have arranged an escort prior to sampling.

To conduct works on the Base, Security & Estate Group (S&EG), the contracted Base Manager (S&EG), must be contacted to inform them of the intended works and to gain permission prior to carrying those out. As well as grant permission to conduct works, S&EG will alert the dedicated field team of any conflicting works on Base. Photo permits must be obtained from S&EG upon arrival at the Base, no photos are to be taken before this is done.

If sample locations occur in a construction site, the field team will need to get permission from the project manager to access the site. Any internal inductions for the site will also need to be completed by the team upon the project manager's request.

2nd Security Forces RAAF (2SECFOR) is the Base security service and will need to be made aware of the works to be carried out and the locations that sampling will occur in.

To gain access to the airside locations a Work Safety Officer (WSO) will need to be contacted and present for the duration of airside activities. Field team members entering airside locations will need to ensure they complete airside awareness training – this can be organised by enquiring with S&EG.

For sampling locations in the ordnance area, Defence contractor Thales, will need to be contacted to arrange entry, and 2SECFOR alerted to the fact that the team has intention to enter the area.

4.3 Groundwater Sample Location Rationale

There are 35 monitoring wells identified for ongoing monitoring, including investigation and private/extraction bores. The OMP (Department of Defence, 2021a) will monitor water quality in the

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shallow and deep portions of the Tindal Limestone Aquifer. The current understanding of the conceptual site model is that the highest concentrations of PFAS are found in a zone that runs from the Base to the Katherine River. PFAS concentrations are evenly distributed within the limestone aquifer (with exception to dilution at shallow depths) and the main source of bore water extraction, hence becoming the target of the OMP (Department of Defence, 2021a) investigation.

Table 5 Groundwater Sample Rationale

Area	Rationale
On-Base	• monitor spatial and temporal variations in PFAS concentrations in groundwater concentrations up, down and cross-gradient of source areas • assess if groundwater PFAS concentrations within and downgradient of the source areas change in response to management measures over time.
Katherine River (East)	• monitor the spatial and temporal variation in the northern and southern extents of the plume boundary • provide data to estimate mass of PFAS entering Katherine River in the future and monitor changes • monitor groundwater wells parallel and perpendicular to plume, and at shallow and deep portions of the aquifer to assist with understanding concentrations changes within the plume.
Katherine River (West)	• monitor the spatial and temporal variations in PFAS concentrations in groundwater concentrations, up, down and cross-gradient of source areas • detect and monitor PFAS concentrations and assess the PFAS impacts on the western side of the Katherine River.

4.4 Groundwater Sampling Locations

Table 6 Groundwater Monitoring Locations

Area	Description	Sampling Location	Sampling Frequency	Number of wells/bores
On-Base	Fire Training Area	MW231, MW104,	Annual	**On-Base** (15 locations)
	Fire Station Area	MW129, MW127, MW149	Annual	
	Fuel Farm 1	MW278	Annual	
	Fuel Farm 2	MW285	Annual	
	Mechanical Equipment Operations Maintenance Section	MW244	Annual	
	Married Quarters	OTH111	Annual	
	75 Squadron	OTH112	Annual	
	Source area downgradient transect	MW110, MW107, MW403	Annual	
	Western Base boundary	MW117	Annual	
	Northern Base boundary	MW734 (formerly RN022392)	Annual	
Off-Base - Private	Katherine Research station	MW134, MW135	Annual	**Off-Base** (33 locations)
	Katherine East	MW137	Annual	
	Katherine East centre of plume	MW138, MW140	Annual	
	Collins Road	MW400	Annual	
	Morris Road	OTH115	Annual	

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Area	Description	Sampling Location	Sampling Frequency	Number of wells/bores
	Uralla Road	POT111	Annual	
	Adjacent to Katherine River – upstream	POT119, OTH113	Annual	
	Adjacent to Katherine River – downstream	MW144	Annual	
	Adjacent to Katherine River	MW142	Annual	
	Stuart Highway, west of Katherine River	OTH114	Biannual	
	Shadforth Road	POT114, OTH117[1], POT120, POT124[1] , POT130[1]	Monthly (Nov-Apr, and Aug)	
	Zimin Drive	POT121, POT112, POT113, POT125[1], POT126[1], POT127[1], POT128[1], OTH118[1], OTH119[1], POT129[1], POT131[1]	Monthly (Nov-Apr, and Aug)	
	Tokmakoff Road	POT198[1], POT201[1]	Monthly (Nov-Apr, and Aug)	
	Arndt Road	POT122	Biannual	
	Emungalan	OTH120[1],	Biannual	

1 = Monitoring locations as per Table 20 added to the monitoring program after publication of the PMAP (Department of Defence, 2019).

4.5 Surface Water Sampling Location Rationale

There are 13 surface water locations identified for ongoing monitoring, including on-Base and off-Base locations comprising of both public and private land access. The OMP (Department of Defence, 2021a) will monitor water quality in the surface water systems down gradient of the Base and monitor the concentrations of Katherine River, Katherine Hot Springs, Tindal Creek and Base run-off drains (Table 7).

Table 7 Surface Water Sample Rationale

Area	Rationale
On-Base	• assess and monitor any PFAS within surface water runoff from the Fire Training Area, runway drains and in natural drainage systems e.g. Tindal Creek.
Off-Base	• monitor spatial and temporal variations in PFAS concentrations in surface water • monitor concentrations of PFAS in Katherine River.

4.6 Surface Water Sampling Locations

The surface water monitoring locations have been selected to maintain consistency with the monitoring completed during the interim monitoring events and the investigation phases.

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 vary between a quarterly and biannual basis and are provided in Table 8 below and are presented on **Figure 4** in Appendix B

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Table 8 Surface Water Sampling Locations

Area	Sampling Location	Number of Locations	Sampling frequency
On-Base	Tindal Creek – Base boundary	SW016, SW021, SW350	Twice in Wet Season
	Runway drain	SW188, SW049	Twice in Wet Season
	Drain off Fire Station handstand	SW140	Twice in Wet Season
Off-Base	Katherine River	SW161, SW110, SW100	Biannual
		SW151	Annual (with biota sampling)
	Katherine River	SW108	Quarterly
	Katherine Hot Springs	SW153	Quarterly
	YMCA Pool	OTH008	Quarterly

4.7 Biota Sampling Locations

In addition to collection of groundwater and surface water samples, aquatic biota (fish and aquatic invertebrates) sampling will occur to supplement existing datasets and support any future reviews of human exposure risk to ingestion of biota containing PFAS.

The Northern Territory Department of Health have issued guidance for the consumption of fish and aquatic species in the Katherine River. Monitoring of PFAS concentrations within fish within the Katherine River is to be undertaken to ensure that the health guidance provided is appropriate and continues to be relevant.

Ethics approvals and Fisheries/Parks & Wildlife licences will be obtained prior to biota sample collection.

The two suitable primary locations identified for sample collection are in the vicinity of (as shown in **Appendix B – Figure 5**):

- Stuart Highway boat ramp: Location code BIO088
- Galloping Jacks boat ramp: Location code BIO078 (approximately 19 km downstream from Stuart Highway)

Target species will be based on those that are recognised as frequently consumed, and from the following five groups presented in Table 9.

Table 9 Aquatic Biota Target Samples

Location	Sample Area Location Code[1]	Indicator/Target Species	Relevant Opportunistic Catch[2]	Target sample numbers
Galloping Jacks	BIO078	Barramundi (*Lates calcarifer*) Bony Bream (*Nematalosa erebi*) Mullet (*Planiliza ordensis*) Cherabin (*Macrobrachium spinipes*)	Sleepy Cod (Oxyeleotris lineolate) Sooty Grunter (*Hephaestus fuligninosus*) Black or Blue Catfish (*Neosilurus ater, Neoarisu graeffei*) Butlers Grunter (*Syncomistes buteri*) Barred Grunter (*Amniataba percoides*)	Collect 50 – 100 g samples per sample collection bag for each species following lab specifications for total number of samples per species.
Down Stream – Stuart Highway	BIO088			

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Location	Sample Area Location Code[1]	Indicator/Target Species	Relevant Opportunistic Catch[2]	Target sample numbers

[1]Biota monitoring location IDs in the OMP (Department of Defence, 2021) were created prior to 2019 and therefore are considered an acceptable deviation from the DCMM, Annex L guidance (Department of Defence, 2021b).
[2]Species not required for sample collection but should be collected and sampled if present during aquatic biota sampling events.

The number of samples collected will vary based on what is caught, however a target of at least three of each indicator species will be aimed for from each location.

4.8 Sample Collection and Handling

4.8.1 Groundwater Sampling

The groundwater sampling methodology and schedule are presented in Table 10.

Table 10 Groundwater Sampling Methodology and Schedule

Item	Details
Groundwater gauging	The depth to groundwater will be measured in each monitoring well prior to collection of groundwater samples. Additionally, during the new-year comprehensive event a gauging round of all locations will be conducted prior to groundwater sampling to enable groundwater contours to be developed. The depth to groundwater will also be measured at the time of sampling at each location. All gauging shall be completed within 24-hour period to industry standards (or as close to 24-hour period as possible). Monitoring well gauging for groundwater modelling purposes will be conducted during the annual sampling event only.
Sample Collection Methodology	**Groundwater Monitoring Wells** Groundwater samples will be collected from monitoring wells using no purge methodology with HydraSleeves™ which will be installed with the top of the HydraSleeve™ collar approximately three-metres below standing water level (SWL) or one-metre below the top of the screened section (whichever is deepest) for a minimum of 24-hours prior to sampling for the initial sampling round. Once sampling is completed, new HydraSleeves™ will be re-deployed during the gauging event conducted as part of the next sampling round. Well construction details are presented in Appendix C. Following sample collection, field parameters will be recorded ex-situ. **Groundwater extraction Bores** Bore water samples will be collected from existing sample ports or taps on the headworks of the extraction bore as a “first flush” sample without pre-purging. The flow of the water will be turned down to provide a steady flow and minimise aeration of the water sample. Following sample collection, field parameters will be recorded ex-situ. Bore construction details will be obtained for the private bore from a “Water-Use Survey”, where available, from the stakeholder
QAQC Samples to be Collected	Field QAQC samples are to include intra-laboratory duplicate and inter-laboratory duplicate samples, rinsate, field blank and trip blank samples. Duplicate samples are to be collected at a minimum frequency of one in 10 PFAS primary samples. Rinsate samples are to be collected at a rate of one sample per day of sampling when non-dedicated equipment is used. Field blank samples are to be collected at a rate of one per day of sampling. Trip blanks are to be collected at a rate of one per esky. Additional sample volume is required to be collected to enable the appropriate laboratory QAQC. For 1-10 primary samples an additional set of samples for a

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Item	Details	
	duplicate and set of samples for a matrix spike analysis must be taken at two separate locations. For 11-20 primary samples an additional set of samples must be taken at a separate location for another duplicate.	
Field Parameters	Temperature, electrical conductivity (EC), dissolved oxygen (DO), redox (oxidation-reduction potential), pH and observations of water quality will be recorded for all samples.	
Sample Analysis	All primary samples will be submitted for PFAS extended suite (Department of Defence, 2022) using the standard levels of detection.	
Minimum Sampling Volumes	PFAS Bottle (White)	2 x 20mL

4.8.2 Surface Water Sampling

The surface water sampling methodology and schedule are presented in Table 11.

Table 11 Surface Water Sampling Methodology and Schedule

Item	Details	
Sample Collection Methodology	Samples are to be collected via hand or using a telescoping sampling pole with laboratory supplied bottle on the end if sample location is from Katherine River, from approximately 0.5 m below the surface (if possible), with care 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 using a sampling pole, with the cap immediately applied once the container is full. Following sample collection, field parameters will be recorded in-situ by placing the water-meter probe in the surface water collection location.	
QAQC Samples to be Collected	Field QAQC samples are to include intra-laboratory duplicate and inter-laboratory duplicate samples, rinsate samples (where non-dedicated equipment is used), field blanks and trip blanks. Duplicate samples are to be collected at a minimum frequency of one in 10 PFAS primary samples. Rinsate samples are to be collected at a rate of one sample per day of sampling when non-dedicated equipment is used. Field blank samples are to be collected at a rate of one per day of sampling. Trip blanks are to be collected at a rate of one per esky. Additional sample volume is required to be collected to enable the appropriate laboratory QAQC.	
Field Parameters	Temperature, EC, DO, redox, pH and observations of water quality will be recorded for all samples.	
Sample Analysis	All primary samples will be submitted for PFAS extended suite (Department of Defence, 2022) using the standard levels of detection.	
Minimum Sampling Volumes	PFAS Bottle (White)	2 x 20mL

4.8.3 Biota Sampling

The biota sampling methodology and schedule are presented in Table 12.

Table 12 Biota Sampling Methodology and Schedule

Item	Details
Sample Collection Methodology	Targeted and opportunistic catch fish and aquatic invertebrates will be collected using an electrofishing boat, using methods that comply with the guidelines set out by the Australian Code of Electrofishing Practice. Stunning will use the minimum power necessary to attract and stun the biota effectively. Gill nets and,

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Item	Details
	rod and reel may also be used to acquire samples. Electrofishing will occur for 5 – 10 minutes per pool, or until adequate samples have been collected. Selected biota will be identified, measured, weighed and euthanized humanely according to the animal ethics permit conditions, and all non-target species or opportunistic catch species will be released from electrical current immediately. Samples will be prepared based on the following procedure: • decontaminate equipment with PFAS-free DI water and PFAS-free detergent (Liquinox), followed by rinsing with PFAS free DI water • store samples in snap-lock bags until preparation • weigh, measure and record species and location caught • use opened bag as board cover • clean knife/blade with DI water • collect 50 – 100 g samples per sample collection bag for each species following lab specifications for total number of samples per species • for large fish the complete tissue samples of edible flesh should be collected. Samples from large fish should not be composited if possible • for smaller fish, samples need to be provided whole with entrails removed. Head and tail can be removed from smaller fish where necessary for placing in bags • for cherabin composite whole to ensure 50 – 100 g per sample collection bag • tissue from the same species caught in the same area may be composited as a single sample if individuals do not meet 50g minimum • collect rinsate sample after cleaning non-dedicated equipment (run DI water over equipment and collect in PFAS sample bottle to at least half full)
QAQC Samples to be Collected	Quality control samples in the form of rinsate blanks will be collected from the sampling and processing equipment from each of the sampling areas to understand if there is the potential for cross contamination from the materials being used in sampling. Intra- and inter-laboratory duplicate samples will be collected from large fish across different species, if possible, at a rate of one duplicate sample for every ten fish sampled. Intra- and inter-laboratory duplicate samples will be collected only from fish where a primary complete sample can be taken from one fillet side, and the duplicate sample can be collected from the opposite fillet side.
Sample Analysis	Samples will be prepared for analysis by Eco Logical at the Department of Fisheries (NT) laboratory prior to dispatching to the primary laboratory. AECOM personnel will prepare samples under direction of Eco Logical, when required. This will include removal of scales/shell, head and internal organs. Fillets will be taken with skin intact and homogenised prior to sub-sampling and analysis. All whole and composited samples selected for analysis will be tested for the extended suite of PFAS (Department of Defence, 2022). The number of samples analysed are pre-determined and based off the minimum quantity requirements as specified above. Additional samples will be kept frozen until the required analysis or reanalysis is confirmed. Laboratory analysis will be conducted by a NATA accredited laboratory for PFAS (EP231X).

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4.8.4 Sample Handling and Transport to Laboratory

AECOM personnel will attempt to reduce heterogeneity in the sample media matrix by dividing the sample collected between primary and inter/intra-laboratory collection jars or bottles during sampling. All samples will be placed on ice in eskies immediately after sampling. Biota samples will be stored in double zip-lock bags, frozen and packed in eskies with frozen water bottle ice bricks.

All samples will be kept, if possible, at approximately 4°C during transit to the laboratory. Samples will be transported directly to the laboratory for analytical testing under standard Chain of Custody (CoC) procedures. Primary and field QAQC samples (excluding inter-laboratory duplicate samples) will be analysed by Australian Laboratory Services (ALS), a National Association of Testing Authorities (NATA) accredited laboratory. The inter-laboratory duplicate samples will be analysed by the secondary laboratory National Measurement Institute (NMI), also a NATA accredited laboratory.

Prior to sampling, assessment of the analytical holding times will be made, and the sampling planned accordingly to ensure that holding times are not breached or minimised.

4.9 Calibration

The water quality meter will be calibrated prior to field mobilisation for field activities with relevant solutions, including pH, EC and redox. 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 a calibration record sheet and included in the Sampling Events Factual Reports.

4.10 Logistics

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

4.11 Analytical Suite and Laboratory Analysis Methods

4.11.1 Laboratory NATA Accreditation Details

Laboratory Sampling analysis is to be conducted using NATA certified laboratories which will implement a quality control plan in accordance with NEPM (2013).

4.11.2 Analytical Schedule

All media sampled shall be analysed for the extended PFAS suite (Department of Defence, 2022) with standard LOR as outlined in **Table 13** below.

Table 13 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

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PFAS Group	Compound	CAS No.
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

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The current standard laboratory limits of reporting (LOR) are described in **Table 14** below.

Table 14 Laboratory Limits of Reporting

Sample Media	Parameter	Technique/Method Reference	LOR*
Groundwater and Surface Water	Extended PFAS Suite (Department of Defence, 2022)	LC/MS-MS	0.01 – 1.0 µg/L
Biota	Extended PFAS Suite (Department of Defence, 2022)	EP231X	0.5 – 5 µg/kg

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

4.12 Sample Nomenclature

In order to meet Defence data management requirements presented in **Section 4.0** of **Annex L** of the Defence Contamination Management Manual (DCMM) (Department of Defence, 2021b), a consistent sample nomenclature has been adopted for the program. All samples collected from each location should have a unique identification. The minimum mandatory requirements for the sample identifications are outlined in **Table 15**, further examples relevant to this SAQP are outlined in **Table 16**.

Table 15 Mandatory Requirements for Defence Sample Nomenclature

Sample ID	Location ID
PPPP_XX000_ZZZ_YYMMDD	XX000
e.g. 0990_BH001_1.2_190207	e.g. BH001
Reference	
PPPP – property identification (4-digits) XX – type of sample recovery 000 – location specific identification ZZZ – indicates the depth that the sample has been collected (in meters below ground level [bgl] YYMMDD – date of sample collection	

Table 16 Sample Abbreviations

Abbreviation	Meaning	Matrix	Examples of Methods of Sampling	Example Sample Name/Comments
MW	Monitoring Well	Water or Soil	Groundwater	0990_MW104_180630 Soil samples may also be collected from monitoring well locations during installation. Aquifer details can also be added following the location ID if required, where; P – perched, S – shallow, I – intermediate, and; D – deep
POT	Potable water	Water	Groundwater	0990_POT125_210617
OTH	Other non-potable water bore	Water	Groundwater	0990_OTH187_210415
SW	Surface water	Water	Surface water	0990_SW002_180630

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Abbreviation	Meaning	Matrix	Examples of Methods of Sampling	Example Sample Name/Comments
BIOAFA	Biota	Aquatic Fauna	Fish, crustaceans, invertebrates and their products; blood, roe etc.	0990_BIOAFA001_190806 Noting that new biota samples collected will be associated with the above-mentioned location areas: BIO078 and BIO088 in Section 7.4, Table 9. These locations were created pre-2019 and therefore a deviation to the DCMM (Department of Defence, 2021b) is permitted.

4.12.1 Quality Assurance / Quality Control Sample Nomenclature

The naming convention for QAQC samples are outlined in **Table 17**, below

Table 17 QAQC Sample Naming Convention

QAQC Sample Type	Naming Convention (where XX is a sequential number independent of sample or matrix type)
Quality control duplicate samples	
Intra-Laboratory duplicate (duplicate)	0990_QC1XX_YYMMDD
Inter-Laboratory duplicate (triplicate)	0990_QC2XX_YYMMDD
Quality assurance samples	
Rinsate	0990_QC3XX_YYMMDD
Field Blank	0990_QC4XX_YYMMDD
Trip Blank	0990_QC5XX_YYMMDD

4.13 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 (Department of Defence, 2021a) 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.

4.14 Adopted Screening Criteria

PFAS screening values have been adopted for groundwater and surface water from the Defence OMP (Department of Defence, 2021a) and are derived from the following documents:

- HEPA (HEPA, 2020) PFAS National Environmental Management Plan (PFAS NEMP 2.0)
- Department of Health (DoH), 2019. Health Based Guidance Values for PFAS for use in
- 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).

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Adopted PFAS screening values are provided in the **Table 18** and **Table 19**.

Table 18 Adopted Groundwater and Surface Water Screening Values (µg/L)

Pathway	Compound	Criteria	Comment / Reference
Drinking water	PFOS + PFHxS	0.07 µg/L	The values presented in the PFAS NEMP 2.0, 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. For PFHxS, DoH 2017 noted that '*FSANZ concluded that there was not enough toxicological and epidemiological information to justify establishing a tolerable daily intake. However, as a precaution, and for the purposes of site investigations, the PFOS tolerable daily intake should apply to PFHxS. In practice, this means that the level of PFHxS exposure should be added to the level of PFOS exposure; and this combined level be compared to the tolerable daily intake for PFOS*'. *All groundwater and surface water results will be compared to these criteria.*
	PFOA	0.56 µg/L	
Recreational use	PFOS + PFHxS	2 µg/L	The values presented in the PFAS NEMP 2.0, 2020 are from the NHMRC guidance on the assessment of PFAS in surface water released in August 2019. 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 groundwater and surface water results will be compared to these criteria.*
	PFOA	10 µg/L	
–Intake – food (Crustaceans)	Sum of PFOS+PFHxS	65 µg/kg	The values are from the Department of Health, 2019. *All biota samples will be compared to these criteria*.
	PFOA	520 µg/kg	
Intake – food (Finfish)	Sum of PFOS+PFHxS	5.2 µg/kg	
	PFOA	41 µg/kg	

Table 19 PFAS Criteria Summary: Ecological

Media	Pathway	Chemical	Criteria	Comment/Reference
Water	Freshwater	PFOS	0.00023 µg/L	HEPA (2020) NEMP 2.0 99% species protection
		PFOA	19 µg/L	HEPA (2020) NEMP 2.0 99% species protection

Note: HEPA (2020) notes that the 99% species protection level for PFOS is close to the level of detection. Agencies may wish to apply a 'detect' threshold in such circumstances rather than a quantified measurement.

4.15 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.

Single use sampling equipment and any waste generated during works (including generation of wastewater or soil) will be managed and/or disposed of appropriately in accordance with Territory waste disposal requirements.

4.16 Quality Assurance/Quality Control Sampling

The recommendations within this document are based on the guidelines presented in:

- NEPM [the National Environment Protection (Assessment of Site Contamination) Measure 1999] as amended in 2013
- HEPA (2020), PFAS National Environmental Management Plan (NEMP 2.0)
- AS4482.1 Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-Volatile and Semi-Volatile Substances
- AS4482.2 Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile Substances
- AS/NZ 5667.1 Water Quality Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handing of samples ANZG (2018). Australian and New Zealand guidelines for fresh and marine water quality
- WA DER (2016). Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).

4.16.1 Field Intra- and Inter-laboratory Duplicate Samples

Intra-laboratory field duplicates will be collected at a frequency of one per ten samples that are collected (10%). Inter-laboratory field duplicates will be collected for groundwater and surface water samples at a rate of one sample per ten collected (10%). Biota intra-laboratory and inter-laboratory duplicate samples will be collected where fish are large enough, left and right fillets will be used as a duplicate sample for quality control analysis. Biota intra- and inter-laboratory will be collected at a minimum frequency of 1 per 10 primary samples. Due to the sample size of fish fillets not being large enough, intra- and inter-laboratory duplicates will be collected from different primary samples. The samples will be sent to a secondary laboratory once one is identified that offer the analysis of fish samples. Repeatability will be assessed by relative percentage difference (RPD) between primary and duplicate samples. If RPD has variability greater than 30% the sample will be reviewed. The minimum volume of intra- and inter-duplicate samples is to follow the below requirements set by the primary and secondary laboratories.

Rinsate samples will be prepared in the field using laboratory prepared bottles and PFAS free deionised water, poured over (if any) decontaminated sampling equipment (e.g. oil/water interface probe or hand trowel). Rinsate samples will be collected at a frequency of one per sampling day, where reusable sampling equipment has been used.

4.16.2 Field Blank Samples

Field blank samples will be prepared in the field using laboratory prepared bottles and PFAS free deionised water to capture any potential air-borne contaminants of concern. These will be collected at a frequency of one per sampling day for water sampling.

4.16.3 Trip Blank Samples

The trip blank water samples will be laboratory supplied and prepared in a clean environment, taken at a rate of one per esky, and will remain within the sample esky during the entire sampling event until arriving at the laboratory for analysis.

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4.16.4 Laboratory QAQC

Additional sample volumes will be obtained to enable laboratory QAQC (duplicates and matrix spike) for PFAS analysis. The frequency of additional samples is 2:10 and 3:20, where two additional sets (2x20mL) are required per 10 primary samples, or three sets per 20 primary samples.

4.17 Fieldwork Documentation

4.17.1 Field Observations and Results

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, redox, temperature) will be recorded at regular intervals
- surface water samples – comments on the observed characteristics of the sample (e.g. colour, turbidity, odour, sheen), description of water body (lake, stream, etc.) and field water quality parameters (pH, EC, DO, redox, temperature) will be recorded.

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

4.17.2 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.

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

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

4.17.3 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 Base 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

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- 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.

4.17.4 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.

4.18 Reporting

4.18.1 Sampling Event Factual Report

No later than four weeks following the completion of each sampling event, AECOM will prepare and submit a Sampling Event Factual Report to Defence. A sampling event is defined as all sampling activities occurring in association with a PMAP (Department of Defence, 2019) defined season (i.e. end of dry / start of wet season), which can include groundwater, surface water, and / or biota sampling occurring at different times throughout a specified season as is appropriate for each sampling type. 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:
  - figures

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- tables
- sampling logs and forms including field water quality parameter measurements
- chain of custody forms
- laboratory analytical certificates and QAQC reports
- equipment calibration certificates.

Following any private property sampling, individual letter reports will be provided to Defence to send to individual stakeholders. These letter reports will not be included in any other report and are strictly for communicating results to individual property owners regarding results from samples collected from the individual stakeholders' properties.

4.18.2 Annual Monitoring and Management 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 (Department of Defence, 2021a)
- relevant figures depicting sampling locations and Base-specific hydrogeological features
- laboratory results and analysis including comparison with relevant screening criteria as identified in each OMP (Department of Defence, 2021a)
- assessment and commentary on appropriate QAQC procedures
- a review of the Conceptual Site Model and provision of a revised Conceptual Site Model if required
- data interpretation, including trends in groundwater concentration, gradient and flow directions
- assessment of statistically based trends that may inform decision making when it comes to the revision of an OMP (Department of Defence, 2021a)
- a statement as to whether the risk profile has changed overall, or for any specific location at the Base, and a recommendation as to whether this should trigger an OMP (Department of Defence, 2021a) and/or PMAP (Department of Defence, 2019) review, or other action.

4.18.3 OMP Review

Review of ongoing management at the Base for the release to the government and public stakeholders. The report should contain the following information:

- identification of improvements to the OMP (Department of Defence, 2021a) procedures in light of observed variability or concentration changes
- review of data gaps and nomination of measures to address significant gaps
- review of Changes in Australian or international practice and guidance in PFAS investigation
- reporting of changed conditions that require mitigation or warrant review of risk assessments.

4.19 Deviations from OMP

While the scope of works and methodology described in this SAQP are generally consistent with that presented in the OMP (Department of Defence, 2021a), a number of points of deviation are noted (refer to **Table 20** below).

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Table 20 Deviations from OMP (Department of Defence, 2021a)

No.	Description	Rationale	Date
1	Monitoring well network changes	An additional 10 private property bores have been included since the release of the fourth version of the OMP (Department of Defence, 2021a). Department of Defence have added these additional locations to provide knowledge in the extent and nature of PFAS west of the Katherine. The additional locations included in the sampling program are as follows: Shadforth Road: • OTH117 • POT124 Zimin Drive: • POT125 • POT126 • OTH118 • POT127 • OTH119 • POT128 • POT129	November 2021
		The erroneous addition of ad-hoc locations OTH121 (erroneously named POT123) in Emungalan to the biannual sampling schedule.	February 2022
		The additional of private property bore OTH120 in Emungalan to the biannual sampling schedule.	March 2022
		Removal of OTH121 (erroneously named POT123) in Emungalan to the biannual sampling schedule.	December 2022
		Additional of one private property bore (POT131) to the 'once in dry season and monthly in wet season' schedule.	July 2023
		Addition of three private property bores (POT130, POT198 and POT201) to the 'once in dry season and monthly in wet season' schedule.	November 2023

5.0 References

ANZG (2018). *Australian and New Zealand guidelines for fresh and marine water quality*.

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

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

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

AS4482.1 *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-Volatile and Semi-Volatile Substances*.

AS4482.2 *Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile Substances*.

AS/NZ 5667.1 *Water Quality Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handing of samples*.

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Coffey (2019a), *RAAF Base Tindal – Interim PFAS Monitoring Report: Sampling conducted December 2018 – January 2019* (754-MELEN199420-R12) prepared for Department of Defence

Coffey (2019b), *RAAF Base Tindal – Interim PFAS Monitoring Report: Sampling conducted June 2019* (754-MELEN199420-R14 prepared for Department of Defence

Coffey (2019c), *RAAF Base Tindal – Interim PFAS Monitoring Report: Sampling conducted March – April 2019* (754-MELEN199420-R13) prepared for Department of Defence

Coffey (2018a). *RAAF Base Tindal Human Health Risk Assessment (HHRA)* (754-MELEN199420_R08) prepared for Department of Defence

Coffey (2018b). *RAAF Base Tindal Detailed Site Investigation Report* (754-MELEN199420_R05) prepared for Department of Defence

Coffey (2018c). *RAAF Base Tindal Supplementary Detailed Site Investigation Report* (754-MELEN199420_R11) prepared for Department of Defence

Department of Defence, 2016. *Routine Environment Water Quality Monitoring Manual.*

Department of Defence, 2019, *PFAS Management Area Plan - RAAF Base Tindal* prepared for Department of Defence.

Department of Defence, 2021a, PFAS Ongoing Monitoring Plan Version 4. October 2021.

Department of Defence, 2021b, *Defence Contamination Management Manual (DCMM).*

Department of Defence, 2022, *Guidance Document E – Standard PFAS Analytical Suite for Detailed Site Investigations*

Department of the Environment and Energy, 2018, *PFAS National Environmental Management Plan (PFAS NEMP)*

Department of Health (DoH), 2019, *Health Based Guidance Values for PFAS for use in site investigations in Australia.* September 2019.

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

National Health and Medical Research Council (NHMRC) (2019). Guidance on PFAS in Recreational Water. August 2019

Department of Environment and Natural Resources*, Water Act 1992* (NT)

Department of Environment and Natural Resources*, Waste Management And Pollution Control Act 1998* (NT)

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Appendix A

Schedule

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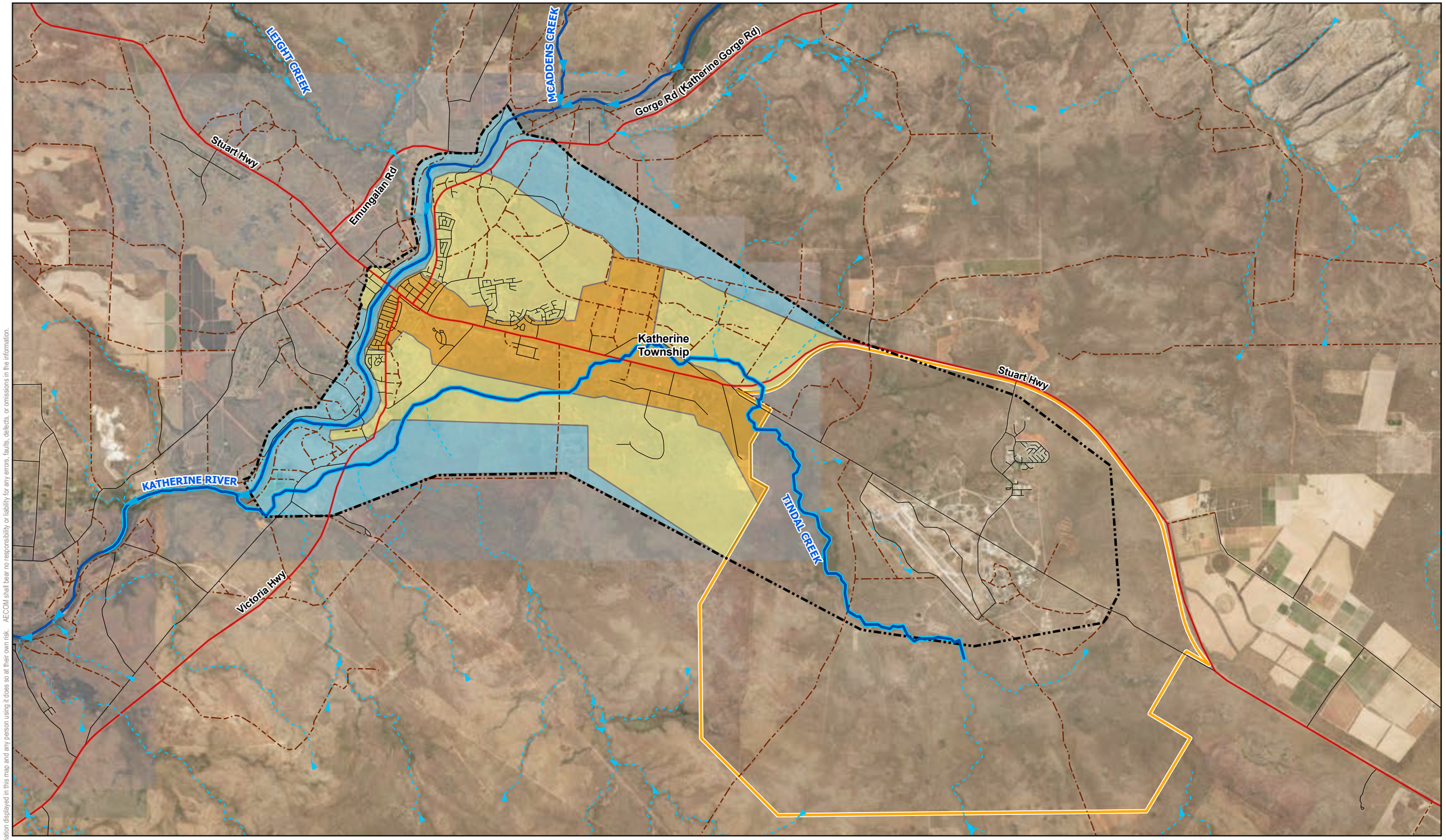
Appendix A - Monitoring Schedule

		Sampling	Location	Wet Season						Dry Season					
				Early		Mid		Late		Early		Mid		Late	
				November	December	January	February	March	April	May	June	July	August	September	October
RAAF Tindal	Fieldwork	Groundwater	Private Property - Cossack	Monthly in wet season	Monthly in wet season	Monthly in wet season	Monthly in wet season	Monthly in wet season	Monthly in wet season				Once in dry season		
			On- and Off-Base												Annual
			Off-Base - West of Katherine River				Biannual							Biannual	
		Surface Water	Katherine River, Hot Springs and YMCA Pool			Quarterly			Quarterly			Quarterly			Quarterly
			On-Base drains and Tindal Creek	Twice in wet season			Twice in wet season								
			Katherine River											Annual	
			Katherine River				Biannual							Biannual	
		Aquatic Biota	Katherine River											Annual	

Appendix B

Figures



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DATUM GDA 1994, PROJECTION MGA ZONE 52

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Kilometres

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LEGEND

- RAAF Base Tindal
- Surface Water Management Area
- Groundwater Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Zone 1 Groundwater > Recreational Water Criteria
- Zone 2 Groundwater > Drinking Water Criteria
- Zone 5 Groundwater < Criteria

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
SAMPLING ANALYSIS QUALITY PLAN

PFAS Management Area

PROJECT ID	60612561
CREATED BY	FLETTN
LAST MODIFIED	FLETTN 24 JUL 2023
VERSION:	2

Figure 1

A3 size

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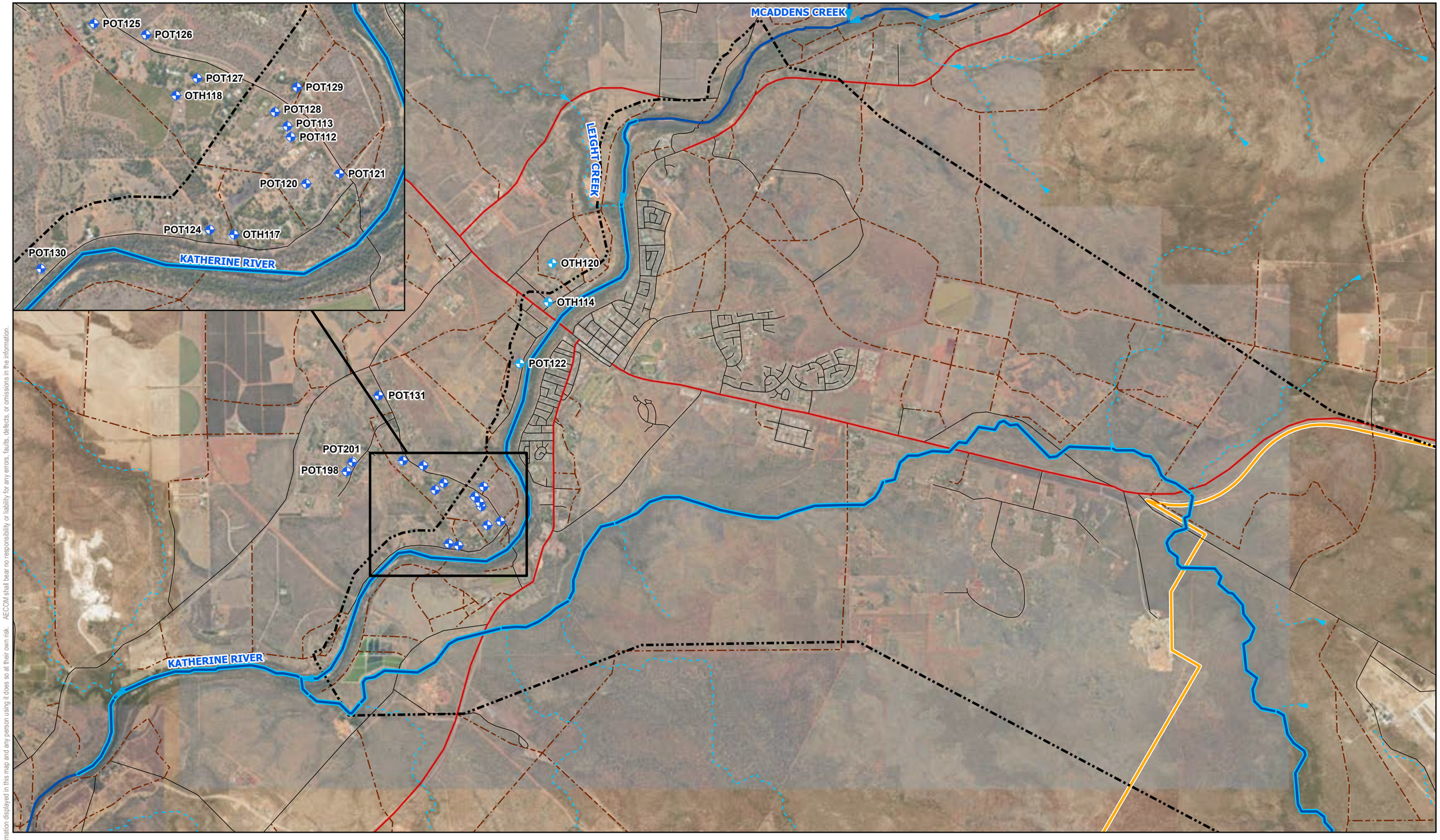

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AECOM

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Kilometres

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LEGEND

- RAAF Base Tindal
- Surface Water Management Area
- Groundwater Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Groundwater Monitoring Location (Monthly during wet season and once during dry season)
- Biannual Groundwater Monitoring Locations

Note: POT114 and OTH119 have not been included due to privacy reasons

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
SAMPLING ANALYSIS QUALITY PLAN

Off-Base Private Bore Sampling Locations

PROJECT ID	60612561
CREATED BY	FLETTN
LAST MODIFIED	FLETTN 26 JUL 2023
VERSION:	4

Figure

2

A3 size

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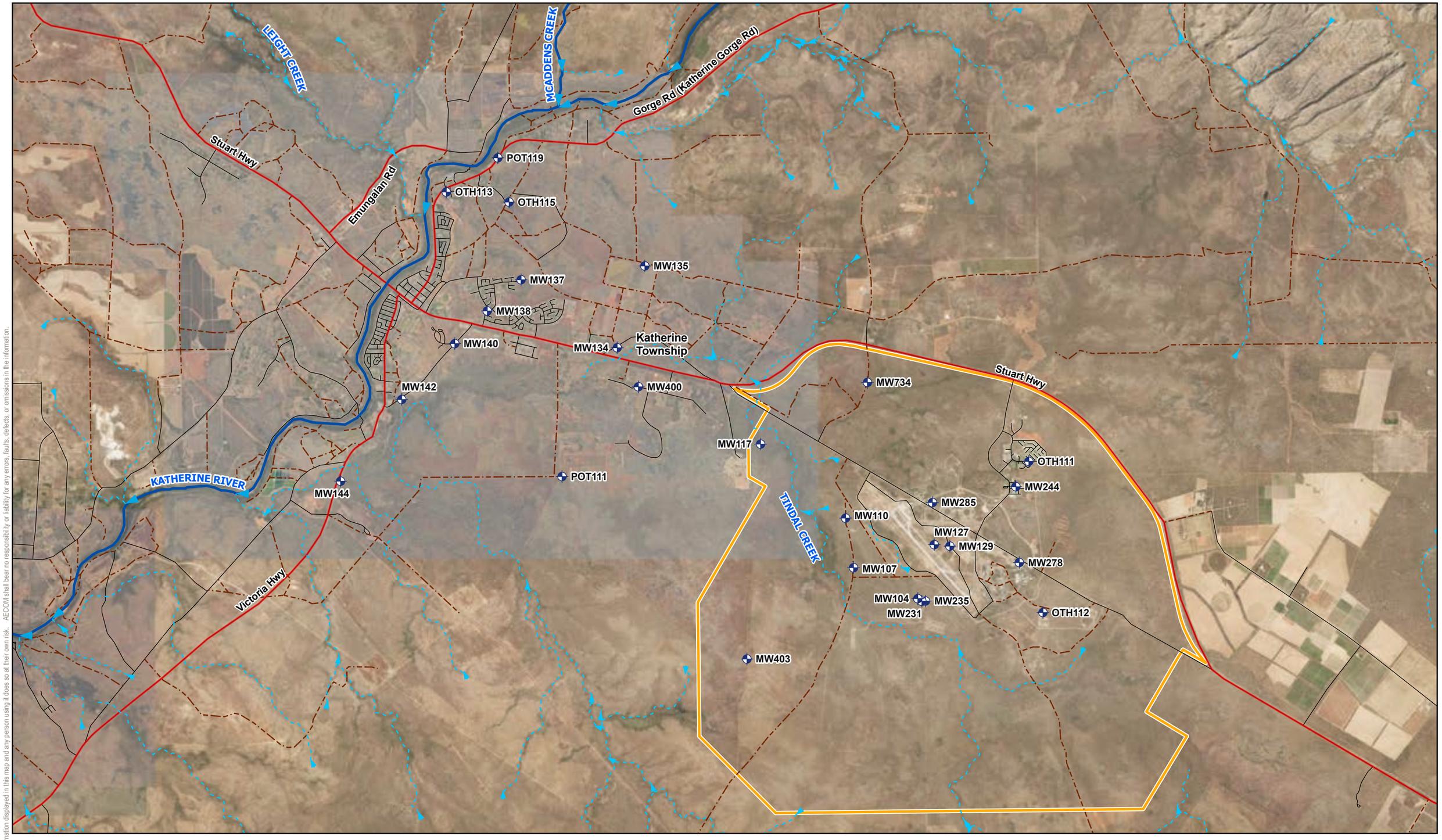

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AECOM

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Kilometres

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LEGEND

- RAAF Base Tindal
- Road
- Track
- Highway
- Katherine River
- Drainage
- Annual Groundwater Locations

Data sources:

Base Data: Imagery (c) NTLIS

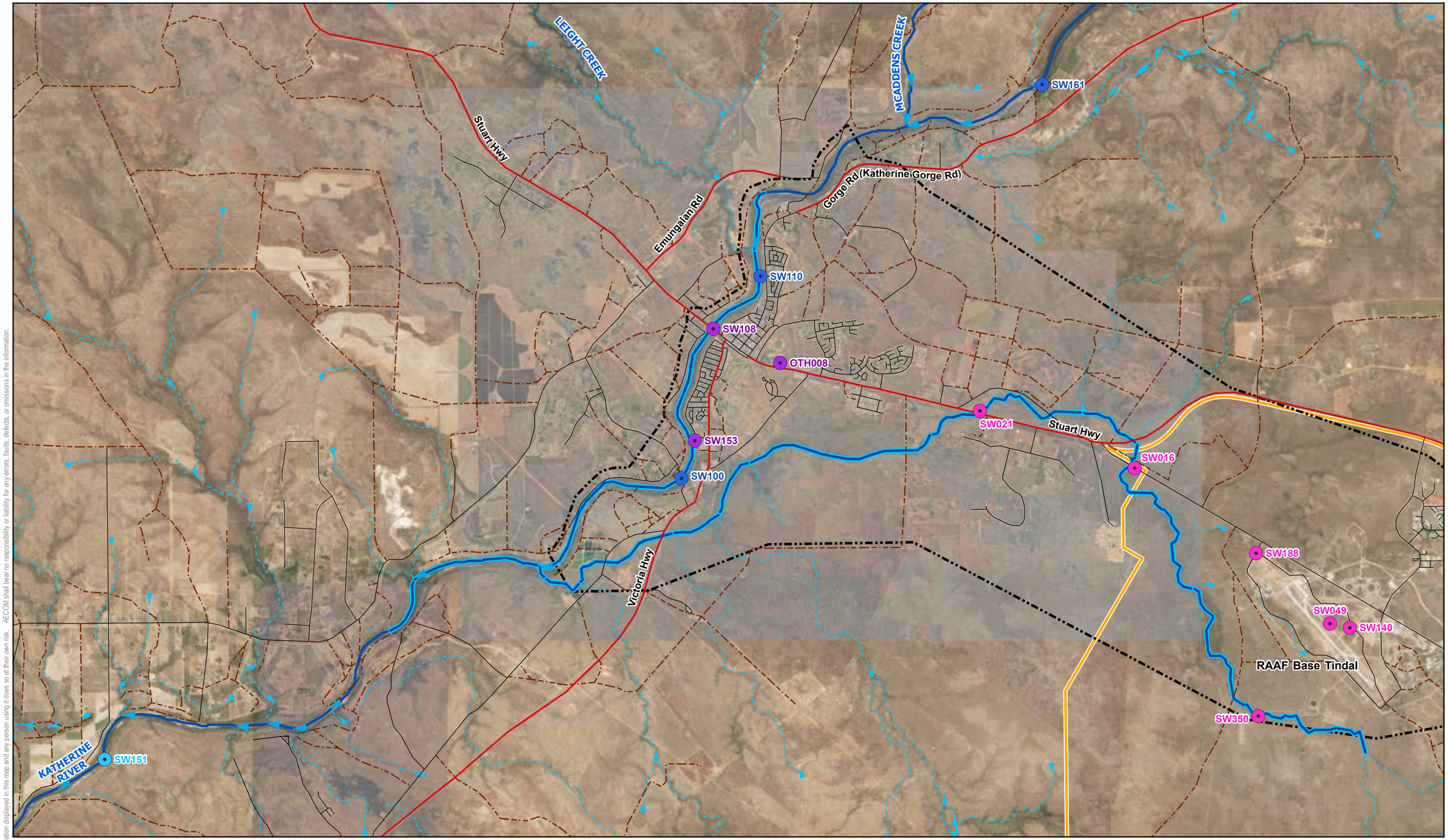
Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
SAMPLING ANALYSIS QUALITY PLAN

On and Off-Base Annual Groundwater Sampling Location

PROJECT ID	60612561
CREATED BY	FLETTN
LAST MODIFIED	FLETTN 24 JUL 2023
VERSION:	2

Figure 3

A3 size



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AECOM

DATUM GDA 1994, PROJECTION MGA ZONE 53

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Kilometres

1:75,000 (when printed at A3)

LEGEND

- RAAF Base Tindal
- Surface Water Management Area
- Groundwater Management Area
- Source Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Quarterly Surface Water Locations
- Bi-annual Surface Water Locations
- Annual Surface Water Locations
- Wet Season Surface Water Locations (Twice in wet season)

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
SAMPLING ANALYSIS QUALITY PLAN

On and Off-Base Surface Water Sampling Locations

PROJECT ID	60612561
CREATED BY	FLETTN
LAST MODIFIED	FLETTN 26 JUL 2023
VERSION:	4

Figure 4

A3 size

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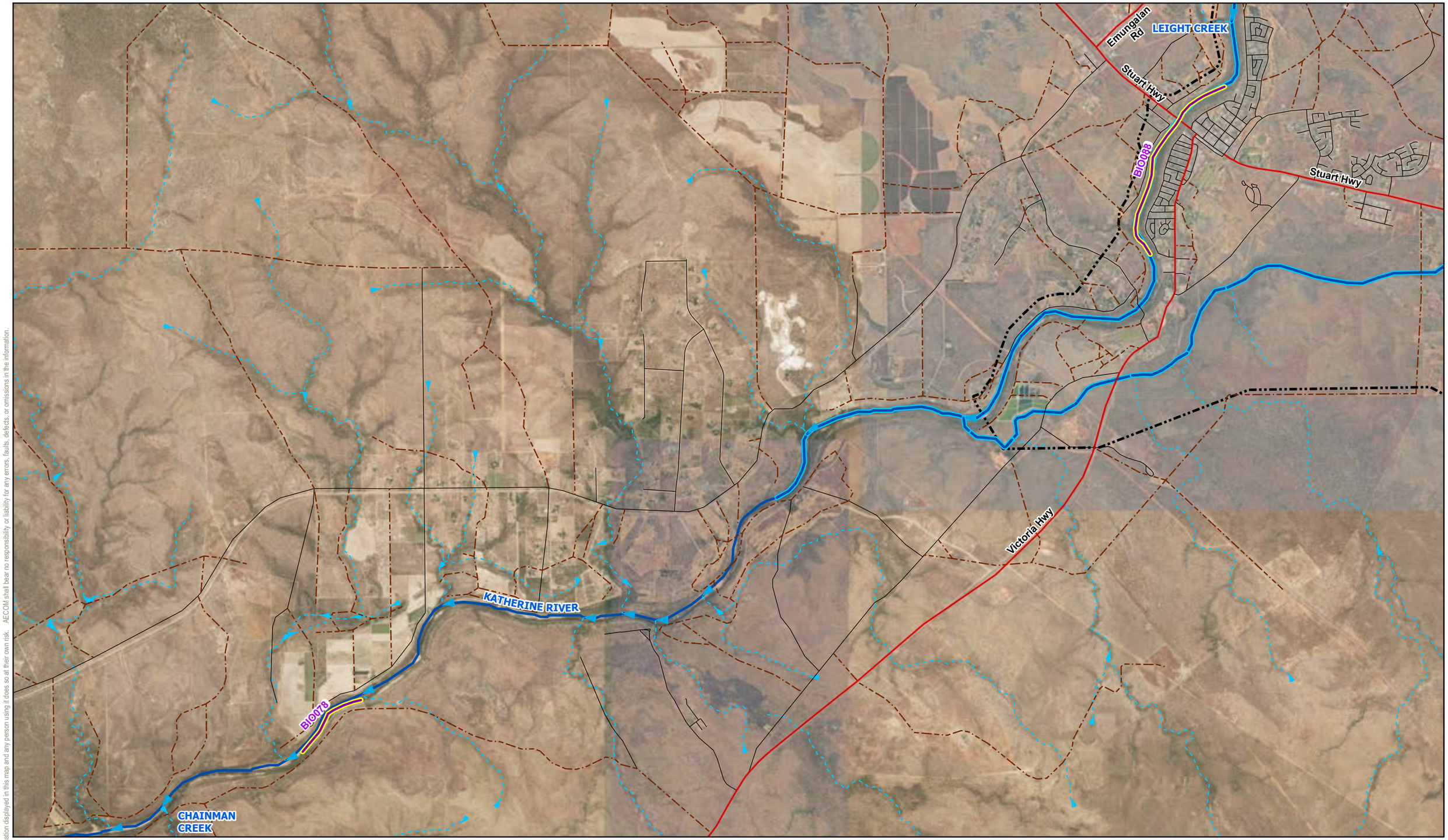

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DATUM GDA 1994, PROJECTION MGA ZONE 53

0 0.5 1 2 3

Kilometres

1:60,000 (when printed at A3)

LEGEND

- Highway
- Road
- Track
- Katherine River
- Drainage
- Biota Sampling Location

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
SAMPLING ANALYSIS QUALITY PLAN

Biota Sampling Locations

PROJECT ID	60612561
CREATED BY	FLETTN
LAST MODIFIED	FLETTN 24 JUL 2023
VERSION:	2

Figure
5

A3 size

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Appendix C

Monitoring Locations

Table C-1 RAAF Base Tindal groundwater monitoring locations

Frequency	Location Code	Historical location ID	On/Off Base	Location	Methodology	Easting	Northing	Screened Intervals (m)	Well Depth (m)	Alternative/Replacement	Rationale/Description
Annual	MW104	-	On-Base	Fire Training Area	Hydrasleeve	217083	8391953.54	2.5 - 20	20.65	Replace	Approx. 200 m directly downgradient of Fire Training Area. Highest concentration in any of the wells installed along this transect. Would provide good understanding of PFAS leaving the Fire Training Area in groundwater.
Annual	MW127	-	On-Base	Fire Station Area	Hydrasleeve	217476	8393240.41	1.5 - 20	26.72	MW126 or MW128	Approx. 300m downgradient of Fire Station. Highest concentration in this transect of wells. Would provide good understanding of PFAS leaving the Fire Station in groundwater
Annual	MW129	-	On-Base	Fire Station Area	Hydrasleeve	217848	8393205.03	2.0 - 20	19.6	Replace	Adjacent to AFFF storage tank. Provide indication of groundwater impact at source area
Annual	MW400	-	Off-Base Public land	Collins Road	Hydrasleeve	210418	8397006	30.6 - 36.0, 51.6 - 57.6, 78.6 - 84.6	84.6	Replace	Impacted well through the centre of the plume off-Base
Annual	MW142	-	Off-Base Public land	Adjacent to Katherine River	Hydrasleeve	204773	8396702.96	3.0 - 18	10.95	MW141	provide data to estimate mass of PFAS entering Katherine River in the future and monitor any changes
Annual	MW144	-	Off-Base Public land	Adjacent to Katherine River	Hydrasleeve	203314	8394753	3.0 – 20	20	Replace	Concentrations historical reported <LOR or low detect. Ongoing monitoring to assess southern extent of plume
Annual	MW149	-	On-Base	Fire Station Area	Hydrasleeve	217860	8393142	10.0 - 16.0	16	MW406	Adjacent to Fire Station Area to the west. Location in the area where surface runoff from the Fire Station Area flows to. Provide indication of groundwaater impact at source area.
Annual	MW231	-	On-Base	Fire Training Area	Hydrasleeve	217180	8391890	3.0 - 24	24	MW121	Adjacent to evaporation ponds on the downgradient (western) side. Provide indication of groundwater impact at source area.
Annual	MW235	-	On-Base	Fire Training Area	Hydrasleeve	217267	8391896	3.0 - 24	24	Replace	Adjacent to Fire Training Area pit, on the downgradient (western) side. Provide indicaiton of groundwater impact at source area.
Annual	MW244	-	On-Base	Former Mechanical Equipment Operations Maintenance Sections (MEOMS)	Hydrasleeve	219423	8394622	1.0 - 21.0	21	MW306	Consisntely highest reported concentrations in Former MEOMS area. Provide indication of groundwater impact at minor source area.
Annual	MW278	-	On-Base	Fuel Farm 1	Hydrasleeve	219505	8392814	3.0 - 24	24	MW115	Adjacent to fuel farm - highest concentration reported at FF1. Provide indictaion of groundwater impact at minor source area.
Annual	MW285	-	On-Base	Fuel Farm 2	Hydrasleeve	217432	8394245	3.0 - 18.0	18	MW286	Adjacent to fuel farm - highest concentration reported at FF2. Provide indication of groundwater impact at minor source area.
Annual	MW107	-	On-Base	source area downgradient transect	Hydrasleeve	215550	8392690.82	1.0 - 15	13.5	MW106	Provides data point ~2km downgradient of Fire Training Area
Annual	MW110	-	On-Base	source area downgradient transect	Hydrasleeve	215361	8393873.91	1.2 - 13.2	12.06	MW111	Provides data point approx. 2 km downgradient of source areas
Annual	MW117	-	On Base	Western Base boundary	Hydrasleeve	213333	8395638.66	0.5 - 14.5	NA	MW118	Monitor PFAS concentrations in groundwater at the Base boundary

Table C-1 RAAF Base Tindal groundwater monitoring locations

Frequency	Location Code	Historical location ID	On/Off Base	Location	Methodology	Easting	Northing	Screened Intervals (m)	Well Depth (m)	Alternative/Replacement	Rationale/Description
Annual	MW134	-	Off-Base Private property	Katherine Research Station	Hydrasleeve	209913	8397936.47	2.5 - 20	NA	MW732 (formerly RN002522)	Impacted well through the centre of the plume off-base
Annual	MW135	-	Off-Base Private property	Katherine Research Station	Hydrasleeve	210572	8399887.85	2.5 - 19	NA	OTH123 (formerly RN033342	Northern edge of the off-Base PFAS plume
Annual	MW137	-	Off-Base Public land	Katherine East	Hydrasleeve	207620	8399558.7	2.0 - 20	20.07	OTH122 (formerly RN030662)	Impacted well through the centre of the plume off-Base
Annual	MW138	-	Off-Base Public land	Katherine East, centre of plume	Hydrasleeve	206814	8398814.44	5.5 - 19.5	NA	OTH116 (formally RN007437)	Impacted well through the centre of the plume off-base
Annual	MW140	-	Off-Base Public land	Katherine East, centre of plume	Hydrasleeve	206039	8398035.46	2.7 - 18.7	18.59	RN002475	provide data to estimate mass of PFAS entering Katherine River in the future and monitor any changes
Annual	MW403	064MW08	On-Base	source area downgradient transect	Hydrasleeve	213008	8390513.03	6.5 - 10.5	10.5	MW735 (formerly RN029430)	Southern Edge of Base
Annual	MW734	RN022392	On Base	Northern Base boundary	Hydrasleeve	215882	8397111	NA	NA	MW132	Non-detect to minor detect well. This location can act as a point to monitor between source areas and receptors to the north of the base (Lansdowne) and monitor the northern extent of the plume.
Annual	OTH111	RN028782, MW244, MW520	On-Base	Married Quarters	Hydrasleeve	219732	8395225.99	45 - 60	>30	-	Bore is (or has previously been) used for on-Base irrigation
Annual	OTH112	RN025650	On-Base	75 Squadron	Tap	220069	8391621.99	Known Base 6	64	-	Bore is (or has previously been) used for on-Base construction works
Annual	OTH113	RN021099	Off-Base Public land	Adjacent to Katherine River - upstream	Tap	205836	8401651.99	18 - 30	NA	RN022025	To provide data to estimate mass of PFAS entering Katherine River in the future and monitor any changes
Annual	OTH115	RN7807	Off-Base Government Property	Morris Road	Tap	207334	8401412	41 - 68	NA	As guided by PWC	Power & Water bore originally installed as a town water production bore
Annual	POT111	PB077	Off-Base Private property	Uralla Road	Hydrasleeve	208597.487	8394865.24	23 - 29	NA	MW478 (PB050)	Closest non-detect private bore to the southern extent of the plume in Uralla. This and 3 other properties to the south are <LOR and have not received a rainwater tank. Need to monitor this bore and reconsider tanks if a detect is reported. Collection from headworks in gated field at entrance of property
Annual	POT119	PB016	Off-Base Private property	Adjacent to Katherine River - upstream	Tap	207066	8402466.89	20 - 27	NA	MW510 (PB090)	Concentrations historically reported <LOR. Ongoing monitoring to assess northern extent of plume. Collection from tapped outlet in front of house.
Biannual	OTH120	RN033559	Off-Base Private property	Emungalan	Tap	205737.98	8402953.99	NA	40	None	Detect west of Katherine River. Sample collected from a tap adjacent to bore. Info to be provided after well
Biannual	POT122	PB202	Off-Base Private property	Arndt Road	Tap	203892	8398884.99	23 - 29	NA	None	Detect west of Katherine River. No town water supply or rainwater tank

Table C-1 RAAF Base Tindal groundwater monitoring locations

Frequency	Location Code	Historical location ID	On/Off Base	Location	Methodology	Easting	Northing	Screened Intervals (m)	Well Depth (m)	Alternative/Replacement	Rationale/Description
Biannual	OTH114	RN033019	Off-Base Private property	Stuart Highway, approx. 200 m west of Katherine River	Tap	204289	8399747.9	Not Known Base 98m	NA	-	This bore has previously reported detectable concentrations of PFAS. Ongoing monitoring to assess PFAS impacts on the western side of Katherine River. Collected from trough outlet on western boundary of property.
Once in dry season and Monthly in wet season.	OTH117		Off-Base Private property	Shadforth Road	Tap	202993	8396285	NA	NA	None	Detect west of Katherine River. Collected from port adjacent to headworks.
Once in dry season and Monthly in wet season.	OTH118	RN024868	Off-Base Private property	Zimin Drive	Tap	202712	8397034	NA	NA	None	Detect west of Katherine River. Sample collected from port adjacent to headworks near card reader sign.
Once in dry season and Monthly in wet season.	OTH119	RN025769	Off-Base Private property	Zimin Drive	Tap	-	-	20 - 27	NA	None	Detect west of Katherine River. Collected from port adjacent to headworks next to control panel.
Once in dry season and Monthly in wet season.	POT112	PB141	Off-Base Private property	Zimin Drive	Tap	203347	8396875	33 - 39	NA	None	Detect west of Katherine River. No town water supply or rainwater tank. Collected from tapped outlet of bore headworks
Once in dry season and Monthly in wet season.	POT114	PB232	Off-Base Private property	Shadforth Road	Tap	-	-	43 - 50	NA	None	Detect west of Katherine River. No town water supply or rainwater tank. Collected from tapped port of permanent sprinkler system 5 m south of bore headworks.
Once in dry season and Monthly in wet season.	POT120	PB092	Off-Base Private property	Shadforth Road	Tap	203433	8396612.02	50 - 56	NA	None	Detect west of Katherine River. No town water supply or rainwater tank. Collected from water intake within large water tank located approximately 10 m north of the bore and control panel.
Once in dry season and Monthly in wet season.	POT121	PB187	Off-Base Private property	Zimin Drive	Tap	-	-	NA	NA	None	Detect west of Katherine River. No town water supply or rainwater tank. Collection from pump outlet prior to tank. Requires removing hose attachment to sample.
Once in dry season and Monthly in wet season.	POT124	-	Off-Base Private property	Shadforth Road	Tap	202892.92	8396354.7	NA	NA	None	Detect west of Katherine River. Sample collected between storage tank and bore headworks.
Once in dry season and Monthly in wet season.	POT125	RN026086	Off-Base Private property	Zimin Drive	Tap	202100	8397350	NA	NA	None	Detect west of Katherine River. Sample collected from port adjacent to headworks next to control panel. Bore feeds into a tank,
Once in dry season and Monthly in wet season.	POT126	RN041870	Off-Base Private property	Zimin Drive	Tap	202527	8397446	NA	NA	None	Detect west of Katherine River. Sample collected from port adjacent to headworks and next to storage tank. Bore feeds into tanks,
Once in dry season and Monthly in wet season.	POT127	RN021096	Off-Base Private property	Zimin Drive	Tap	202830	8396970	NA	NA	None	Detect west of Katherine River. Sample collected from a tap on side of pumphouse that is fed by the bore.
Once in dry season and Monthly in wet season.	POT128	RN021098	Off-Base Private property	Zimin Drive	Tap	203100	8396830	NA	NA	None	Detect west of Katherine River. Collected from port adjacent to headworks along south side of property access road

Table C-1 RAAF Base Tindal groundwater monitoring locations

Frequency	Location Code	Historical location ID	On/Off Base	Location	Methodology	Easting	Northing	Screened Intervals (m)	Well Depth (m)	Alternative/Replacement	Rationale/Description
Once in dry season and Monthly in wet season.	POT129	RN030864	Off-Base Private property	Zimin Drive	Tap	203200	8396940	NA	NA	None	Detect west of Katherine River. Sample collected from tap approximately 20 metres NE of bore location
Once in dry season and Monthly in wet season.	POT130	-	Off-Base Private property	Shadforth Road	Tap	202031	8396199	NA	NA	None	Owner's request to be included in OMP.
Once in dry season and Monthly in wet season.	POT131	N/A	Off-Base Private property	Zimin Drive	Tap	203092	8396830	NA	NA	None	Detect west of Katherine River. Sample collected from tap to the right of the house.
Once in dry season and Monthly in wet season.	POT198	-	Off-Base Private property	Tokmakoff Road	Tap	201356	8397185	NA	NA	None	Owner's request to be included in OMP.
Once in dry season and Monthly in wet season.	POT201	-	Off-Base Private property	Tokmakoff Road	Tap	201394	8397287	NA	NA	None	Owner's request to be included in OMP.
Once in dry season and Monthly in wet season.	POT113	PB193	Off-Base Private property	Zimin Drive	Tap	203327	8396934.99	35 - 42	NA	None	Detect west of Katherine River. Sample collected directly from tapped bore. Bore is located across from water tank.

NA - Not available in DEDMS

Table C-2 RAAF Base Tindal Surface Water Monitoring Locations

Location Code	On/Off Base	Location	Frequency	Easting	Northing	Longitude	Latitude	Former name	Rationale/Description
SW350	On-Base	Tindal Creek - near Fire Training Area	Twice in wet Season	215877	8391329	132.3636	-14.5362	TDL WAT 5	Capture potential PFAS runoff from Fire Training Area into TC.
SW140	On-Base	Drain off Fire Station hardstand	Twice in wet Season	215877	8391329	132.38162	-14.5196	None	Monitor concentrations of runoff directly from Fire Station
SW049	On-Base	Runway drain	Twice in wet Season	217380	8393267	132.37774	-14.518859	None	Monitor concentrations within runway drain adjacent to Fire Station Area
SW188	On-Base	Runway drain	Twice in wet Season	215832	8394742	132.363547	-14.505368	TDL WAT 2	Capture runoff from runway drains
SW016	On-Base	Tindal Creek – Base boundary	Twice in wet Season	213286	8396526	132.340139	-14.488989	TDL WAT 3, SW121	Tindal Creek base boundary
SW021	Off-Base Public land	Tindal Creek - off-Base	Twice in wet Season	210044	8397724	132.310219	-14.477827	SW114, SW115	Tindal creek off-base in Uralla. Adjacent to Stuart Highway
SW161	Off-Base Public land	Katherine River – Donkey Camp	Biannual	211349. 1519	8404565. 292	132.323049	-14.416184	SW167	Monitor upgradient concentrations of PFAS in Katherine River
SW110	Off-Base Public land	Katherine River - Knotts Crossing	Biannual	205444	8400547	132.267888	-14.451841	None	Monitor concentrations of PFAS in Katherine River
SW100	Off-Base Public land	Katherine River - Low-level crossing	Biannual	203786	8396312	132.252054	-14.489915	KR3_SW001	Monitor concentrations of PFAS in Katherine River
SW151	Off-Base Public land	Katherine River - Galloping Jacks	Annual	191700	8390422	132.139347	-14.541763	None	Monitor concentrations of PFAS in Katherine River
SW108	Off-Base Public land	Katherine River - Stuart Hwy	Quarterly	204453	8399446	132.258584	-14.461678	SW109, KR1_SW001, SW077, SW173, SW172	Monitor concentrations of PFAS in Katherine River
SW153	Off-Base Public land	Katherine Hot Springs	Quarterly	204069	8397100	132.254768	-14.482826	None	Monitor concentrations of PFAS in Katherine Hot Springs
OTH008	Off-Base Private property	YMCA Pool	Quarterly	205856	8398730	132.271504	-14.468295	PB043	Monitor concentrations of PFAS in the Katherine YMCA pool.

Prepared for
Department of Defence Directorate of PFAS Remediation Environment and Engineering Branch
ABN: 68706814312

AECOM

Dry Season Sampling Events Factual Report 2023

PFAS OMP - RAAF Base Tindal

25-Jan-2024
PFAS Ongoing Monitoring Plan

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Dry Season Sampling Events Factual Report 2023

PFAS OMP - RAAF Base Tindal

Client: Department of Defence Directorate of PFAS Remediation Environment and Engineering Branch

ABN: 68706814312

Prepared by

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Quality Information

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Date 25-Jan-2024

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Verifier/s [redacted]

Revision History

Rev	Revision Date	Details	Approved	
			Name/Position	Signature
0	25-Jan-2024	Final	[redacted] Principal Environmental Scientist	[redacted]

Table of Contents

Abbreviations

Abbreviation	Term
AECOM	AECOM Australia Pty Ltd
ALS	ALS Environmental Pty Ltd
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved Oxygen
DoH	Department of Health
DQO	Data quality objectives
DQI	Data quality indicators
EC	Electrical Conductivity
FTA	Fire Training Area
HEPA	Heads of Environment Protection Authority
LOR	Limit of Reporting
MW	Monitoring Well
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NMI	National Measurement Institute
NSW	New South Wales
OMP	Ongoing Monitoring Plan
PFAS	Per- and poly-fluoroalkyl substances
PFHxS	Perfluorohexanesulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality Assurance and Quality Control
RAAF	Royal Australian Air Force
RPD	Relative percentage difference
SAQP	Sampling and Analysis Quality Plan

Abbreviation	Term
SW	Surface Water

List of Units

Unit	Definition	Unit	Definition
^{o}C	Degrees Celsius	mg	Milligrams
cm	Centimetre	mV	Millivolts
L	Litre	µg	Micrograms
m	Metre	µS	Microsiemens
km	Kilometre	g	gram
mAHD	metres Australian Height Datum	mbTOC	metres below top of casing

1.0 Introduction

1.1 Preamble

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement the per- and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP) (Department of Defence, 2021a) outlined in the PFAS Management Area Plan (PMAP) (Department of Defence , 2019) at RAAF Base Tindal (the 'Site') in the Northern Territory. The location of the Site and Management Areas are shown in Appendix A - Figure 1.

The primary purpose of the OMP is to monitor changes to the PFAS impact in groundwater and surface water pathways associated with the key sources of PFAS as initially identified and assessed through the detailed site investigation phase of works (Coffey, 2018a) (Coffey, 2018b). Changes may result from the specific or cumulative impact of remediation or containment actions, existing transportation trends, and changes to hydrogeology or climatic conditions. These changes to PFAS contamination originating from Defence property can inform risk management decisions by Defence and Territory agencies to protect human health and the environment.

The monitoring program at the Site includes a regime of groundwater, surface water and biota sampling to evaluate these changes in the long term, to enable Defence to maintain an up-to-date understanding of temporal and spatial distribution, concentration, and transport of PFAS contaminants.

The most recent PFAS Ongoing Monitoring Plan approved in October 2021, that is covered within the PMAP (Department of Defence, 2021a), outlines the requirement to conduct biota sampling (once per year), groundwater sampling of r private bores (monthly during the wet season and once during the dry season), annual or biannual monitoring of other groundwater locations on and off-base, and surface water sampling (up to four times a year) as presented in Table 1 below.

Table 1 Sampling schedule with dry season sampling highlighted in yellow.

<table>
<tr><th rowspan="3">Sampling</th><th colspan="6">Wet Season</th><th colspan="6">Dry Season</th></tr>
<tr><th colspan="2">Early</th><th colspan="2">Mid</th><th colspan="2">Late</th><th colspan="2">Early</th><th colspan="2">Mid</th><th colspan="2">Late</th></tr>
<tr><th>Nov-22</th><th>Dec-22</th><th>Jan-23</th><th>Feb-23</th><th>Mar-23</th><th>Apr-23</th><th>May-23</th><th>Jun-23</th><th>Jul-23</th><th>Aug-23</th><th>Sep-23</th><th>Oct-23</th></tr>
<tr><td rowspan="3">Groundwater</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td></td><td></td><td></td><td>Once in Dry</td><td></td><td></td></tr>
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<tr><td></td><td></td><td></td><td colspan="2">Biannual</td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Biannual</td></tr>
<tr><td rowspan="4">Surface Water</td><td></td><td colspan="2">Quarterly</td><td colspan="2">Quarterly</td><td></td><td></td><td></td><td colspan="2">Quarterly</td><td colspan="2">Quarterly</td></tr>
<tr><td></td><td colspan="3">Twice in Wet Season</td><td colspan="2">Twice in Wet Season</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td></td><td></td><td></td><td colspan="2">Biannual</td><td></td><td></td><td></td><td></td><td colspan="2">Biannual</td></tr>
<tr><td>Aquatic Biota</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Annual</td></tr>
</table>

1.2 Objectives

The purpose of this factual report is to summarise the scope of works and findings from the dry season sampling works conducted between July 2023 through to October 2023. These works included:

- Quarterly (July 2023 and September 2023) and biannual (September 2023) surface water sampling in accordance with the Sampling, Analysis and Quality Plan (SAQP), Revision 4 (AECOM, 2023a) and Revision 5 (AECOM, 2023b) respectively.
- 'Once in dry season' private property and groundwater sampling (August 2023) in accordance with Revision 4 SAQP (AECOM, 2023a); as well as annual and biannual groundwater sampling (October 2023) in accordance with Revision 5 SAQP (AECOM, 2023b).
- Annual surface water sampling (October 2023) in accordance with the SAQP (AECOM, 2023b)
- Annual aquatic biota sampling (October 2023) in accordance with the SAQP (AECOM, 2023b).

This report has been prepared in accordance with the Defence's PFAS OMP Factual Report Guidance, (Department of Defence, 2021b).

An ongoing monitoring report is to be subsequently developed for the purpose of assessing the data collected during the discrete monitoring events completed over the 12-month period within which the works detailed herein fall and will include assessment of environmental variability and statistically significant trends in PFAS concentrations.

2.0 Scope of Work

2.1 Overarching Scope

The groundwater sampling, surface water sampling and biota sampling works described herein were completed in general accordance with the SAQPs (AECOM, 2023a) (AECOM, 2023b). Prior to sampling, the plans were reviewed to ensure compliance with the following:

- the OMP (Department of Defence, 2021a)
- Heads of the Environment Protection Authority (HEPA), PFAS National Environmental Management Plan (NEMP 2.0) (HEPA, 2020)
- National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013 (ASC NEPM, 2013)
- Defence Routine Environment Water Quality Monitoring Manual (Department of Defence, 2021c)
- AS/NZ 5667:1998 Water quality – Sampling (AS/NZS, 1998)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018).

The scope of works completed for the dry season sampling events included:

- Surface water sampling (refer to Table 2 , Table 3 and Table 4 below and Appendix A – Figure 2):
  - Collection of samples from three ‘quarterly’ surface water locations in July 2023
  - Collection of samples from three ‘quarterly’ and three ‘biannual’ surface water locations in September 2023
  - Collection of one ‘annual’ surface water sample during aquatic biota sampling in October 2023.
- Groundwater sampling (refer to Table 5 and Table 6 below and Appendix A – Figure 3 and Figure 4):
  - Collection of groundwater samples from 15 private property locations in accordance with the ‘once in dry season’ sampling scope in August 2023.
  - Collection of groundwater samples from 28 locations in accordance with the annual sampling scope in September 2023.
- Biota sampling (refer to Table 7 below and Appendix A – Figure 6):
  - Annual aquatic biota samples were caught, processed and sent to the laboratory in October 2023.
- Collection of relevant quality assurance and quality control (QA/QC) samples: intra- and inter-laboratory duplicate samples at a rate of one in 10 primary samples, one rinsate and one field blank sample per equipment per fieldwork day, and one trip blank sample per cooler for each event
- Analysis of samples included the 28 analyte PFAS-suite (full suite) at the standard limit of reporting (LOR)
- Data management of the OMP field and laboratory data in the Defence ESdat database
- Preparation of this Dry Season Sampling Event Factual Report.

2.2 Monitoring Locations

The monitoring locations outlined within the relevant SAQPs (AECOM, 2023a) (AECOM, 2023b) for the dry season sampling events are tabulated below. Deviations from the planned sampling are highlighted in **bold** and detailed in Section 2.3 below.

Table 2 Quarterly surface water sampling locations – July and September 2023 (Figure 2 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Katherine River	SW108, SW153
	Stuart Highway	OTH008

Table 3 Biannual surface water sampling locations – September 2023 (Figure 2 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Katherine River	SW100, SW110, SW161

Table 4 Annual surface water sampling locations – October 2023 (Figure 2 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Katherine River	SW151

Table 5 Dry season private property bore groundwater sampling locations – August 2023 (Figure 3 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Shadforth Road	POT114, POT120, POT124, OTH117[1]
	Zimin Drive	POT112, POT113, POT121, POT125, POT126, POT127, POT128, POT129, OTH118, OTH119[1], POT131

1 Not presented in Appendix A – Figure 3 for privacy reasons.

Table 6 Annual groundwater sampling locations – September 2023 (Figure 4 in Appendix A)

Area	Description	SAQP Locations
On-Base	Fire Training Area	MW104, MW231, **MW235**
	Fire Station	MW127, MW129, MW149
	Fuel Farm 1	MW278
	Fuel Farm 2	MW285
	Mechanical Equipment Operations Maintenance Section	MW244
	Married Quarters	OTH111
	75 Squadron	OTH112
	Source area downgradient transect	MW110, MW107, MW403

Area	Description	SAQP Locations
	Western Base boundary	**MW117**
	Northern Base boundary	**MW734**
Off-Base	Katherine Research Station	**MW134,** MW135
	Katherine East	MW137
	Katherine East centre of plume	**MW138,** MW140
	Collins Road	MW400
	Morris Road	OTH115
	Adjacent to Katherine River – upstream	**POT119,** OTH113
	Uralla Road	POT111
	Adjacent to Katherine River – downstream	MW144
	Adjacent to Katherine River	MW142

Table 7 Biannual groundwater sampling locations – September 2023 (Figure 3 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Emungalan	OTH120
	Arndt Road	**POT122**
	Town Council	OTH114

Table 8 Annual biota sampling locations –October 2023 (Figure 6 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Katherine River	Galloping Jacks (BIO078) and Down Stream Stuart Highway (BIO088)

2.3 Deviations from the SAQP

There were no deviations from the SAQP (AECOM, 2023a) (AECOM, 2023b) for the quarterly or biannual dry season surface water sampling events. The August 2023 once in dry season groundwater event also had no deviations from the SAQP (AECOM, 2023a).

The September 2023 annual and biannual groundwater event included some deviations from the SAQP (AECOM, 2023b) as outlined in **Table 9** below.

Table 9 Deviations from the SAQP during the September 2023 sampling event

SAQP	Deviation	Impact on OMP
Collection of three biannual	One sample not collected: • Appointment for sampling POT122 was not confirmed and	Minor impact - There is a property data gap for POT122 as the data for this location is limited to historical results.

SAQP	Deviation	Impact on OMP
groundwater samples	property deemed not safe to conduct sampling by field team. The property appears unoccupied with overgrown vegetation and the bore was deemed not operational and has not been confirmed fixed by the stakeholder.	
Collection of 28 annual groundwater samples	Alternative locations sampled due to being blocked by roots or dry: • MW117 was blocked by roots and it's alternative MW118 was sampled in lieu. • MW134 was dry, alternative location MW732 was sampled in lieu. • MW138 was blocked with roots, alternative extraction bore OTH116 was sampled in lieu.	No impact – alternative locations listed within the SAQP (AECOM, 2023b) were sampled.
	Three locations not sampled due to: • POT119 was not able to be sampled due to no signed access agreement received from property owner. • MW235 has been decommissioned with no alternative location listed. • MW734 being blocked by roots with no alternative location listed.	Moderate impact - data gap for private property POT119. Historical results prior to April 2021, all reported below the LOR. It is unknown if concentrations and water usage have changed since then. Therefore, there is a potential health risk if concentrations have increased and if owners are using this bore for potable water. Minor impact – data gap for on-Base locations MW734 and MW235 but locations are on-Base and as hydraulically downgradient locations were able to be sampled; data gap is not expected to materially affect interpretation of results in context of monitoring objectives.
Collection of quarterly surface water samples in September 2023	The SAQP (AECOM, 2023a) states that quarterly surface water sampling is to occur in October. It should be noted that the OMP (Department of Defence, 2021a) indicates that quarterly surface water sampling can occur in either September or October.	No impact – The OMP includes September as an appropriate month for quarterly surface water sampling to occur.
Collection of annual groundwater samples in September 2023	The SAQP (AECOM, 2023b) states that annual groundwater sampling is to occur in October. This is to ensure that samples are collected during the later portion of the dry season but before wet season conditions start in the region. Samples were collected in	No impact – samples were collected during the latter portion of the anticipated climatic dry season period for the region.

SAQP	Deviation	Impact on OMP
	the last week of September and groundwater conditions would not have changed substantially within a week's time period to impact the quality of the data or the use of the data for interpretive analysis.	

The October 2023 annual biota and surface water event included some deviations from the SAQP (AECOM, 2023b) as outlined in Table 10.

Table 10 Deviations from the SAQP during the October 2023 sampling event

SAQP	Deviation	Impact on OMP
Collection of water quality parameters from surface water sampling locations	Water quality parameters were not collected from SW151 during biota sampling.	Minor impact – water quality parameters were taken from other locations along Katherine River during the September 2023 sampling event and the lack of data will not have a substantial impact on data interpretation.

3.0 Sampling Methodology

The methodologies adopted for the groundwater, surface water and biota were in general accordance with the applicable revisions of the SAQP (AECOM, 2023a) and (AECOM, 2023b) noting that deviations are captured in Section 2.3 above.

Table 11 Surface water and groundwater sampling methodology

Item	Details
Groundwater and surface water methodology	
Surface water sampling	Surface water samples were collected from either mid-way through the water column or approximately 0.5 m below the surface, or mid-column for shallow sampling locations, with care taken to minimise collection of sediment or floating materials in the samples. At each location, laboratory supplied bottles were lowered into the water using a decontaminated aluminium sampling pole with the cap immediately applied once the container was full and retrieved from the water. Surface water sampling results are presented in Appendix B – Table 1 with analytical results presented in Appendix B – Table 2.
Groundwater gauging	Depth to groundwater and total depths were measured prior to collection of groundwater samples using a decontaminated oil/water interface probe. Gauging was performed where possible at monitoring wells, noting that extraction bores fitted with taps are not accessible for gauging. Gauging results are presented in Appendix B – Table 3.
Groundwater sampling	Groundwater samples were collected from accessible monitoring wells using no-purge methodology HydraSleeves™, which were installed within the screened interval of the wells for a minimum of 24 hours prior to the sampling round. HydraSleeve™ positioning was based on a review of the well construction log and ~3 m below the measured groundwater depth. Extraction bore water samples were collected from existing taps on the headworks of the extraction bore. Samples were collected from the 'first-flush' from the tap. Groundwater analytical results are presented in Appendix B – Table 4.
Water Quality parameters	Water quality parameters were recorded ex-situ, post-sample collection, using a YSI Pro Water Quality Meter. Water quality measurements recorded consisted of the following: temperature (°C), electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (reported as redox), and pH. Observations of odour, colour and clarity (low, moderate or high turbidity) of the samples collected were recorded at each location. Refer to Appendix C for calibration records of the water quality meter and sampling logs.
QA/QC samples	For water sampling, field QA/QC samples included intra-laboratory duplicate and inter-laboratory duplicates at a rate of 1 in 10 primary samples, rinsates at a rate of 1/day where decontaminated equipment was used, field blanks at a rate of 1/sampling day and trip blank samples at a rate of 1/cooler. Refer to Section 3.2 and for assessment of QA/QC sample data and full data validation report in Appendix D.
Sample analysis	Samples were submitted to the primary and secondary laboratories for PFAS analysis. ALS Environmental (ALS) Sydney, NSW was used as the primary laboratory. The National Measurement Institute (NMI) of Sydney, NSW was used as the

Item	Details
	secondary laboratory. ALS and NMI methods for analyses were certified by the National Association of Testing Authorities (NATA). Chain of Custody (COC) forms are presented in Appendix E and laboratory certificates are presented in Appendix F.
Aquatic biota sampling	
Aquatic biota target samples	Target species for each identified sample location were based on those that are recognised as consumed by the public from the following two groups: • Fish (Barramundi (Lates calcarifer), Sooty Grunter/ Black Bream (Hephaestus fuliginosus), Bony Bream (Nematalosa erebi), Butler's Grunter (Syncomistes butleri), Mullet (Planiliza ordensis)), Archerfish (Toxotes chatareus), Sleepy Cod (Oxyeleotris lineolata), Black Catfish (Neosilurus ater), and Blue Catfish (Neoarius graeffei)) • Crustaceans (Cherabin (Macrobrachium spinipes)).
Aquatic biota sampling methodology	Sampling was conducted by Eco Logical Australia Pty Ltd and the Department of Fisheries (NT) on 27-28 October 2022. Ethics approvals and Fisheries/Parks & Wildlife licenses were obtained prior to biota sample collection. Targeted fish and aquatic invertebrates were collected using an electrofishing boat, using methods that comply with the guidelines set out by the Australian Code of Electrofishing Practice. Stunning used the minimum power necessary to attract and stun the biota effectively. Electrofishing occurred for 5 – 10 minutes per pool, or until adequate samples were collected. Selected biotas were identified, measured, weighed and euthanized humanely according to the animal ethics permit conditions, and all non-target species were released from electrical current immediately. Samples were prepared for analysis at the Department of Fisheries laboratory prior to dispatching to the primary laboratory. This included the removal of scales/shell, head, and internal organs. Fillets were taken with skin intact and homogenised prior to sub-sampling and analysis. Samples were prepared based on the following procedure: • For Target fish: - Used opened bag as board cover - Cleaned knife/blade with deionised water - For large fish the complete tissue samples of edible flesh was collected For smaller fish, samples were provided whole with entrails removed. • For Redclaw Crayfish: - Rinsed in deionised water - Composited whole as 50-100g samples (about 3-5 individuals per sample). • For Longbum: - Shells placed inside a sample bag and carefully smashed with a - hammer, then tissue extracted with forceps - Tissue rinsed with deionised water - Composited 10 individuals as a sample. • The weight, length, species, and location caught were recorded.
QA/QC samples	Field QA/QC samples collected included rinsate and intra-laboratory duplicates which are described as the following: • Rinsate samples were taken from decontaminated sample processing equipment (filleting knife)

Item	Details
	• Intra-lab duplicates were taken from fin fish to ensure homogeneity for intra-laboratory analysis rather than composite samples of crustaceans. Refer to Appendix D for data validation report of the results.
Sample analysis	All samples collected were tested for the extended suite of PFAS. Samples were submitted to the primary laboratory for analysis in accordance with the SAQP (AECOM, 2023a). Australian Laboratory Services Environmental (ALS) Sydney, NSW was used as the primary laboratory. ALS methods for analyses were certified by the National Association of Testing Authorities (NATA). Chain of custody (COC) forms and laboratory certificates are presented in Appendix E and Appendix F, respectively.

3.1 Adopted screening criteria

Screening criteria were selected on the basis of national guidance in the form of the PFAS National Environmental Management Plan, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. Guidance documents used to assess the dataset includes the following:

- Department of Health (DoH) Health Based Guidance Values for PFAS for use in site investigations in Australia (Department of Health, 2019)
- Heads of the Environment Protection Authority (HEPA), PFAS National Environmental Management Plan (PFAS NEMP 2.0) (HEPA, 2020)
- National Health and Medical Research Council (NHMRC), Guidance on PFAS in Recreational Water (NHMRC, 2019)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, (ASC NEPM, 2013).

Table 12 Summary of adopted screening criteria for groundwater and surface water

Pathway	Compound	Criteria	Comment/reference
Human health receptors			
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	These values are from the PFAS NEMP 2.0 (HEPA, 2020).
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	These values are from PFAS NEMP 2.0 (HEPA, 2020).
	PFOA	10 µg/L	

Pathway	Compound	Criteria	Comment/reference
Ecological receptors			
Freshwater - 99% species protection	PFOS	0.00023 µg/L	These values are from the PFAS NEMP 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.
	PFOA	19 µg/L	

Table 13 Summary of adopted screening criteria for consumption of aquatic biota

Pathway	Compound	Criteria	Comment/reference
Human health receptors			
Crustaceans	PFOS and PFOS + PFHxS	65 µg/kg	Department of Health (2019) *Derivation: Children 2-6 years, median consumption* Occasionally consumed food. Trigger criteria for investigation for crustaceans apply to molluscs due to the small number of consumers of molluscs.
	PFOA	520 µg/kg	
Finfish	PFOS and PFOS + PFHxS	5.2 µg/kg	Department of Health (2019). *Derivation: Children 2-6 years, P90 consumption*

3.2 Data quality objectives and data validation

The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2023a).

The data validation report is provided in Appendix D.

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) in all primary samples during the September 2023 sampling except for SW161, MW144, MW403, OTH112, OTH128 and POT111. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

The July, August and September 2023 surface water and groundwater monitoring events were completed in conjunction with ad-hoc groundwater sampling events which were reported separately. Parent samples for the field intra-laboratory and inter-laboratory duplicates reflect these ad-hoc locations with sample IDs being present in the laboratory reports. The data validation reports have been assessed as an all-inclusive event.

Data validation procedures employed in the assessment of the field and laboratory QA/QC data are indicative that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report. An examination of sampling analysis data compared to the data validation findings did not result in any results that required flagging for potential inaccuracies.

All data collected during this event has been reviewed and uploaded to the Defence ESdat database in accordance with Defence Contamination Management Manual (DCMM) (Department of Defence, 2021c) Annex L requirements.

4.0 Field observations and results

4.1 Surface water

4.1.1 Surface water field observations and measurements

Table 14 Surface water observations and field measurements for June and October 2023 sampling events.

Compound	Criteria
Fieldwork dates	The quarterly surface water sampling events occurred on 24 July 2023 and 18 September 2023. The biannual surface water sampling event was completed in conjunction with the quarterly event on 18 September 2023.
Access and sample collection	All quarterly and biannual surface water sampling locations were accessible and able to be sampled during the July 2023 and October 2023 sampling events.
Field observations	Katherine River generally had moderate flows with low turbidity, no odour or sheen. The Katherine Town Pool and Hot Springs were noted to be colourless with low to no turbidity, no odour or chloride odour (Katherine pool) and no sheen.
Surface water flow	The Katherine River level was recorded as being at approximately 0.250 m at the Katherine River Railway Bridge on 24 July 2023 and 0.218 m on 18 September 2023, recorded from Station G814001 (Northern Territory Department of Environment, Parks and Water Security, 2022).
Water quality measurements	Stabilised water quality parameter readings are presented in Appendix B- Table 1 and are summarised below per event. **Quarterly event July 2023*:** • DO ranged from 3.96 mg/L (SW153) to 5.30 mg/L (SW108) indicating highly oxygenated water. • EC was 284.9 µS/cm at SW108 indicating freshwater to brackish water. • pH ranged from 6.07 (SW108) to 6.46 (SW153) indicating relatively neutral conditions. • Redox (corrected) ranged from 318.6 mV (SW153) to 378.1 mV (SW108) indicating oxidising conditions. **Quarterly event September 2023*:** • DO was consistent at 2.97 mg/L (SW108 & SW153) indicating highly oxygenated water. • EC ranged from 479.4 µS/cm (SW108) to 785.0 µS/cm (SW153) indicating freshwater to brackish water. • pH ranged from 7.32 (SW108) to 7.43 (SW153) indicating relatively neutral conditions. • Redox (corrected) ranged from 324.2 mV (SW108) to 415.2 mV (SW153) indicating oxidising conditions. **Biannual event September 2023:** • DO ranged from 2.91 mg/L (SW110) to 4.33 mg/L (SW100) indicating oxygenated water. • EC ranged from 85.4 µS/cm (SW161) to 665.0 µS/cm (SW100) indicating generally freshwater conditions. • pH ranged from 7.26 (SW110) to 7.84 (SW161) indicating relatively neutral conditions. • Redox (corrected) ranged from 297.6 mV (SW161) to 431.5 mV (SW100) indicating oxidising conditions.

*OTH008 (Katherine Town Pool) was not included in the surface water field summary as the water is artificially chemically controlled.

4.1.2 Surface water analytical results

The PFAS surface water analytical results from the July and September 2023 quarterly and September 2023 biannual sampling events are presented in Appendix B – Table 2.

During the July 2023 and September 2023 quarterly sampling events, the Sum of PFHxS+PFOS and PFOA concentrations were consistently detected above the LOR at all three samples for both events (OTH008, SW108 and SW153), with concentrations of PFOS being above the ecological freshwater species protection (99%) guideline. SW108 was the one location for both events that was above the drinking water guidelines (HEPA, 2020) for Sum of PFHxS+PFOS. There were no first-time detections above the LOR or new exceedances of the screening criteria in the dataset.

During the September 2023 biannual sampling event, two (SW100 and SW110) of three samples detected Sum of PFHxS+PFOS concentrations above the LOR, SW100 had a concentration above the PFAS NEMP drinking water selected criteria (HEPA, 2020). Concentrations of PFOA were below the LOR and therefore below the selected criteria at all locations. There were no first-time detections above the LOR or new exceedances of the screening criteria in the dataset.

Surface water sample (SW151) was collected during the biota sampling event. Results of PFHxS+PFOS at SW151 (0.2 µg/L) were above the LOR and NEMP (HEPA, 2020) drinking water guideline value 0.07 µg/L but below the recreational guideline value of 2.0 µg/L.

4.2 Groundwater

4.2.1 Groundwater field observations and measurements

Table 15 Groundwater field observations and measurements

Compound	Observation and field measurements
Fieldwork dates	The dry season groundwater sampling event was completed on 22 to 24 August 2023. The annual and biannual groundwater sampling were conducted in conjunction from 18 to 27 October 2023.
Access and sample collection	All locations for the dry season groundwater sampling event in August 2022 were accessed and sampled. Three locations were unable to be sampled but their alternative listed locations from the SAQP (AECOM, 2023a) (AECOM, 2023b) were, for the annual and biannual groundwater sampling event in September 2023: • MW117 being blocked by roots, MW118 was sampled in-lieu. • MW134 was blocked with roots, MW732 was sampled in-lieu. • MW138 was dry, OTH116 was sampled in-lieu. All locations (or their alternatives) were accessed and sampled with the following exceptions: • MW235 has been decommissioned with no alternative location listed. • MW734 being blocked by roots with no alternative location listed. • POT122 due to the bore not being operational with no alternative location.

Compound	Observation and field measurements
Water quality measurements	Water quality measurements were taken during sample collection using a YSI Pro Water Quality Meter. Stabilised readings are presented in Appendix B –Table 3. **Dry season private bore event 22 – 24 August 2023:** • DO ranged from 1.61 mg/L (POT127) to 6.58 mg/L (OTH117) indicating oxygenated water conditions • EC ranged from 71.3 µS/cm (OTH119) to 769 µS/cm (POT129) indicating freshwater conditions • pH ranged from 6.64 (OTH119) to 7.69 (POT124) indicating near neutral to slightly basic (alkaline) conditions • Redox (corrected) ranged from 272.2 mV (OTH118) to 992 mV (POT126) indicating reducing to oxidising conditions. **Annual event 18 – 27 September 2023**: • DO ranged from 0.82 mg/L (MW129) to 31.5 mg/L (MW231_14.0) indicating poorly to well oxygenated water • EC ranged from 150 µS/cm (MW732) to 1,120 µS/cm (MW124) indicating freshwater to brackish conditions • pH ranged from 6.05 (MW231_14.0) to 7.75 (OTH115) indicating neutral to basic conditions • Redox (corrected) ranged from 23.1 mV (MW732) to 428.5 mV (POT111) indicating reducing to oxidising conditions. **Biannual event 18 September 2023:** • DO ranged from 2.7 mg/L (OTH120) to 3.57 mg/L (OTH114) indicating oxygenated water • EC ranged from 780 µS/cm (OTH114) to 848 µS/cm (OTH120) indicating fresh to brackish water conditions • pH ranged from 3.85 (OTH114) to 7.11 (OTH120) indicating acidic to neutral conditions • Redox (corrected) ranged from 315.2 mV (OTH120) to 337.2 mV (OTH114) indicating oxidising conditions.
Groundwater levels	During the annual and biannual sampling event in October 2022, groundwater levels were measured from monitoring wells only, as sampled extraction bores do not permit access for groundwater level measurements. Standing water levels ranged from 4.152 metres below top of casing (mbTOC) (MW127) to 19.072 mbTOC (MW135). Groundwater elevations were then calculated using available top of casing elevation data in metres above Australian Height Datum (mAHD) and ranged from 91.479 mAHD (MW144) to 130.396 mAHD (MW244). Elevations are presented in Appendix A – Figure 5 and suggests that inferred groundwater on-Base flows from east to west, towards Katherine Township and River.

4.2.2 Groundwater analytical results

Groundwater analytical results The PFAS groundwater analytical results from the August 2023 and September 2023 sampling events are presented in Appendix B– Table 4.

Resampling of POT120 in July 2023 reported concentrations of Sum of PFHxS+PFOS to be 0.04 µg/L, which is below the drinking water criteria (HEPA, 2020).

During the August 2023 dry season private bore sampling event, five of 15 groundwater samples reported concentrations of PFAS above the laboratory LOR and above the selected criteria. Detects above the LOR for Sum of PFHxS+PFOS ranged between 0.01 µg/L (POT124) and 0.08 µg/L (POT112). No results reported detections of PFOA above the LOR. There were no first-time detections above the LOR or new exceedances of the screening criteria in the datasets.

During the September 2023 annual and biannual sampling event, 21 of 27 sampled locations reported concentrations of PFAS above the laboratory LOR. Reported detections above the LOR for Sum of PFHxS+PFOS ranged between 0.01 µg/L (OTH111) and 4,230 µg/L (MW231_9.0). Reported detections

above the LOR for PFOA ranged between 0.02 µg/L (MW107 & OTH116) and 568 µg/L (MW231_9.0). There were no first-time detections above the LOR or new exceedances of the screening criteria in the datasets. There were two new historical maximums recorded for the biannual groundwater sampling event:

- On-Base location MW118 (alternative location for MW117 that was impacted by roots) reported concentrations of Sum of PFHxS+PFOS to be 3.05 µg/L during the September 2023 event when the previous historical maximum at MW118 was recorded in November 2017, 2.16 µg/L.
- Off-Base location OTH116 (alternative location for MW138), which is located in Katherine East and is used for oval irrigation, reported concentrations of Sum of PFHxS+PFOS to be 1.11 µg/L during the September 2023 event when the historical maximum was 1.08 µg/L in April 2020.

Due to MW118 being a monitoring location on-Base and OTH116 solely used for irrigation, continued monitoring of these locations in line with the OMP is recommended. As both results are of the same order of magnitude as historical results, no further action is required.

4.3 Biota

4.3.1 Field observations and field measurements

Table 16 Biota observations

Item	Observation
Field Observations	Sample descriptions were provided by NT Fisheries field staff following the biota sampling event via an excel spreadsheet, noting fauna group, species type and weight. These are presented in Appendix B – Table 5.
Access and Sample Collection	All monitoring locations were accessible and able to be sampled. Fish and invertebrate species collected and analysed included: BIOFA088 (Katherine River - downstream of Stuart Hwy): • Barramundi (Lates calcarifer) • Black Catfish (Neosilurus ater) • Bony Bream (Nematalosa erebi) • Butler's Grunter (Syncomistes butleri) • Sleepy Cod (Oxyeleotris lineolata). • Mullet (Planiliza ordensis) • Cherabin (Macrobrachium spinipes). BIOFA078 (Katherine River – Galloping Jacks): • Barramundi (Lates calcarifer) • Blue Catfish (Neoarius graeffei) • Black Catfish (Neosilurus ater) • Bony Bream (Nematalosa erebi) • Berney's Catfish (Neoarius berneyi) • Butler's Grunter (Syncomistes butleri) • Mullet (Planiliza ordensis) • Cherabin (Macrobrachium spinipes) • Sleepy Cod (Oxyeleotris lineolata).

4.3.2 PFAS biota analytical results

Results from the October 2023 biota sampling event reported 44 of 44 primary samples above the LOR for PFAS. Sampling area BIOAFA78 had 19 of 22 biota samples that exceeded the adopted screening criteria for fin fish for the Sum of PFHxS+PFOS concentrations. Sampling area BIOAFA88 had 21 of 22 biota samples that exceeded the adopted screening criteria for either fin fish or crustaceans for the Sum

of PFHxS+PFOS concentrations. The PFAS biota analytical results are presented in Appendix B – Table 5.

5.0 Summary and next sampling events

5.1 Summary of monitoring events

Sampling for the PFAS OMP during the dry season included:

- Sampling of three quarterly surface water locations in July 2023 and in September 2023
- Sampling of three biannual surface water locations in September 2023
- Sampling of 15 dry season private property bores in August 2023
- Sampling of 25 annual (or their alternative) groundwater locations on- and off-Base in September 2023
- Sampling of two biannual groundwater locations off-Base in September 2023.
- Collection of 44 annual aquatic biota samples was completed in late October 2023.

Findings of dry season sampling events and recommended actions are summarised in Table 17 below.

Table 17 Summary of Sampling Event and Trigger Conditions

Item	Comment	Recommended Actions
Access to sampling locations	• All locations for the two quarterly and one biannual surface water events in July 2023 and September 2023 were sampled. • All locations for the dry season private bore groundwater event in August 2023 were sampled. • All locations for the biannual groundwater event in September 2023 were accessed and sampled with the exception of: - POT122, as appointment for sampling was not confirmed and property deemed not safe to sampling due to overgrown vegetation and bore previously not operational. • All locations (or SAQP prescribed alternative) for the annual groundwater event in September 2023 were accessed and sampled with the exception of: - POT119 was not able to be sampled due to no signed access agreement received from property owner. - MW235 has been decommissioned with no alternative location listed. - MW734 being blocked by roots with no alternative location listed.	Seek permission or find an alternative for monitoring locations POT119 and POT122. Review monitoring well network and unblock scheduled wells and their alternatives. New monitoring wells have been installed at the Fire Training Area (FTA), and additional monitoring wells will be installed once remediation works are completed in 2023. After which, the monitoring network at the FTA will be evaluated by the Lead Consultant to determine appropriate groundwater monitoring locations to be utilised for the OMP. Continue monitoring in accordance with the SAQP and PMAP.

Item	Comment	Recommended Actions
First-time detection of PFHxS+PFOS or PFOA in groundwater and surface water	There were no first-time detections above the limit of reporting for PFHxS+PFOS or PFOA in groundwater or surface water.	Continue monitoring in accordance with the SAQP and PMAP.
New exceedance of NEMP 2.0 (HEPA, 2020) drinking water guideline values in groundwater and surface water	No new exceedances of the drinking water guideline for PFOA or sum PFOS+PFHxS were reported in groundwater or surface water.	Continue monitoring in accordance with the SAQP and PMAP.
New exceedance of NEMP 2.0 (HEPA, 2020) recreational water guideline values in surface water	No new exceedances of the recreational guideline for PFOA or sum PFOS+PFHxS were reported in surface water.	Continue monitoring in accordance with the SAQP and PMAP.
New exceedance of NEMP 2.0 (HEPA, 2020) ecological water guideline value for surface water	No new exceedances of the ecological guideline PFOS and PFOA were reported in surface water, Noting that the ecological guideline for PFOS is below the limit of reporting.	Continue monitoring in accordance with the SAQP and PMAP.
Sum of PFHxS+PFOS and/or sum of PFAS concentrations show an increasing trend in groundwater and surface water.	This will be evaluated in the annual interpretive report.	Continue monitoring in accordance with the SAQP and PMAP.
Sum of PFHxS+PFOS and/or sum of PFAS concentrations show a decreasing trend in groundwater and surface water.	This will be evaluated in the annual interpretive report.	Continue monitoring in accordance with the SAQP and PMAP.

5.2 Upcoming sampling events

The next surface water sampling event will be the start of wet season event, scheduled for when the first rains of the wet season start, nominally December 2023. The next groundwater sampling event will be the 'monthly in wet season' groundwater sampling, which will occur each month from November 2023 through to April 2024.

6.0 References

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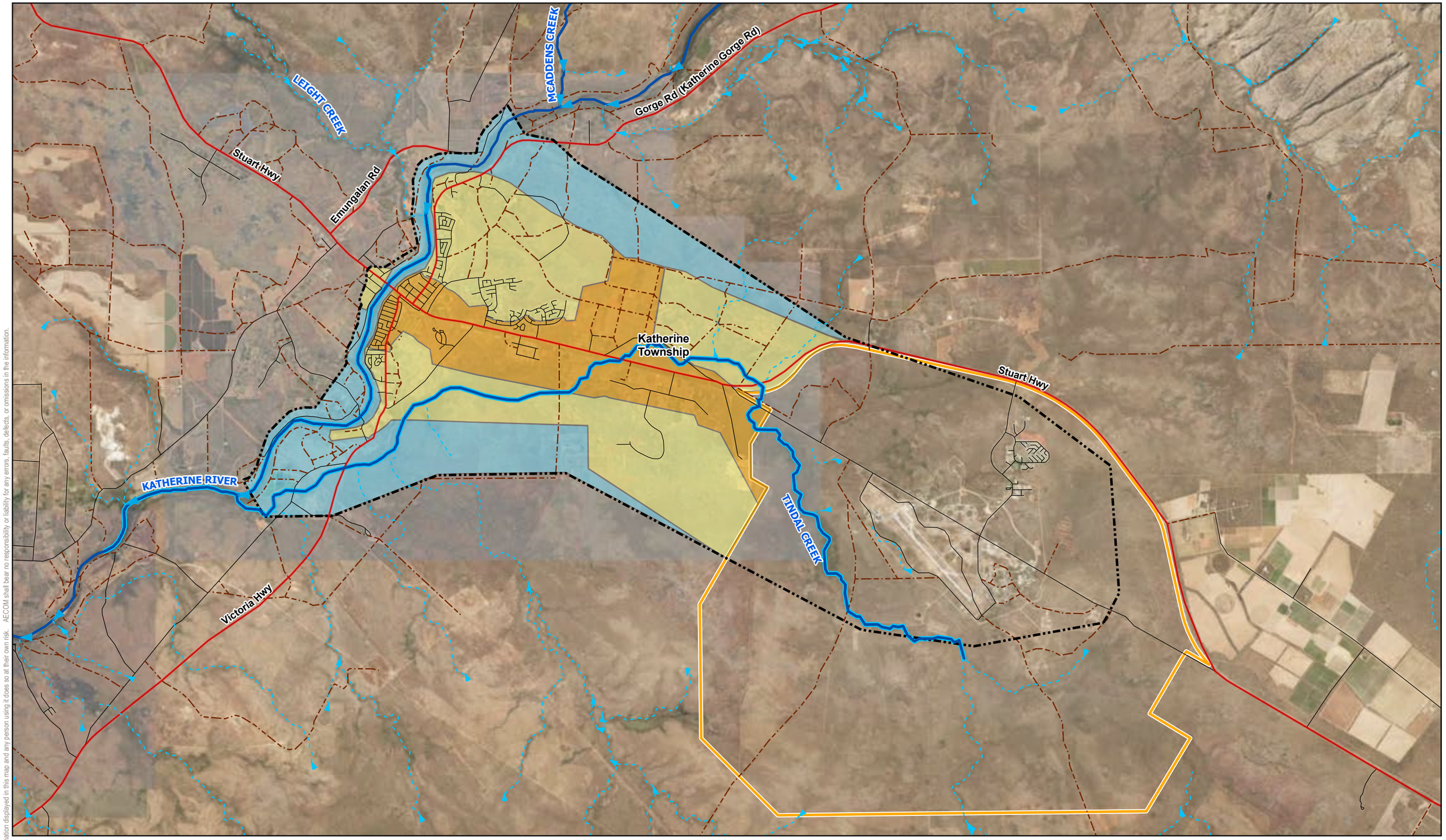
Appendix A

Figures



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DATUM GDA 1994, PROJECTION MGA ZONE 52

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Kilometres

1:85,000 (when printed at A3)

LEGEND

- RAAF Base Tindal
- Surface Water Management Area
- Groundwater Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Zone 1 Groundwater > Recreational Water Criteria
- Zone 2 Groundwater > Drinking Water Criteria
- Zone 5 Groundwater < Criteria

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
DRY SEASON SAMPLING FACTUAL REPORT 2023

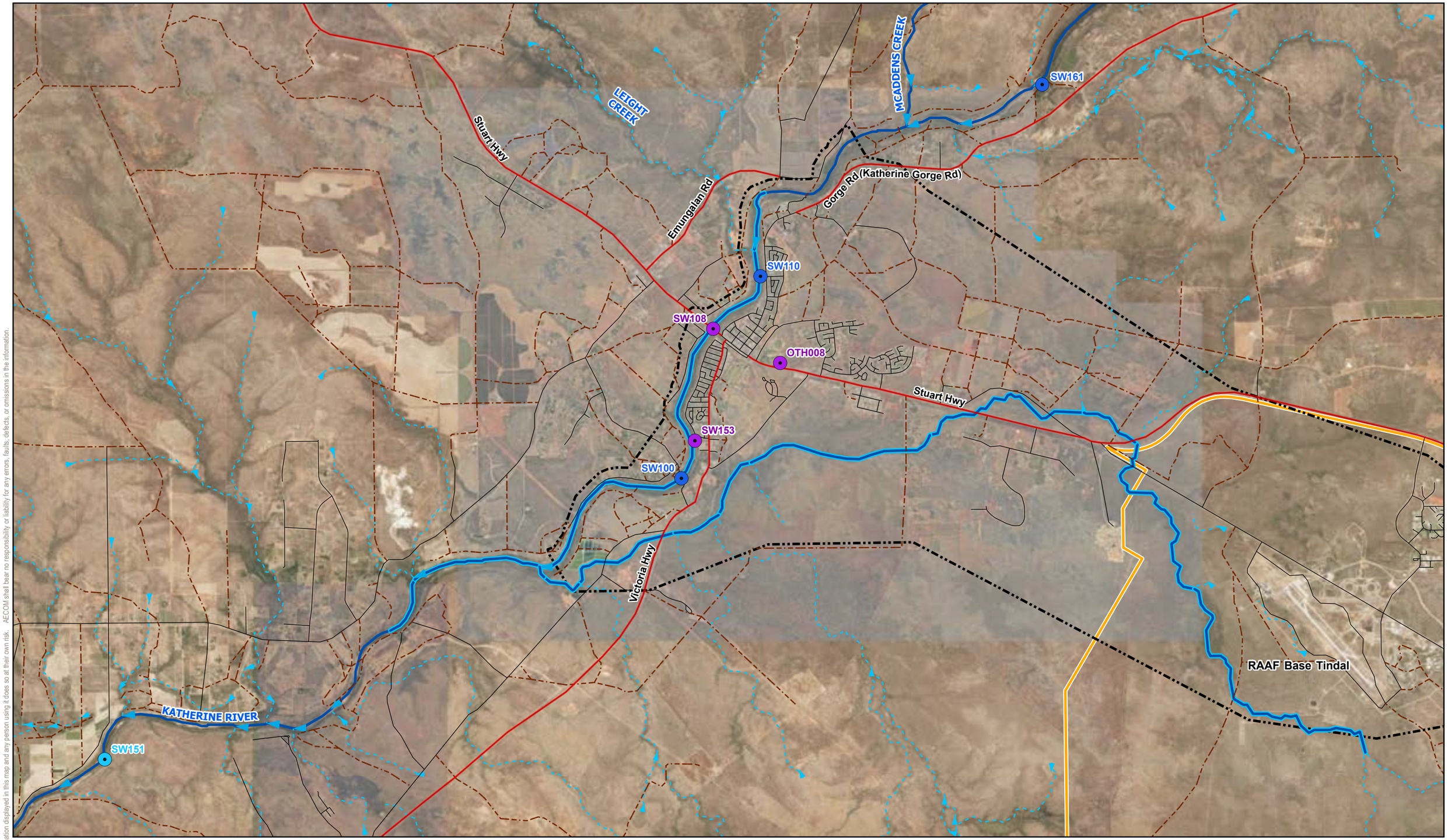
PFAS Management Area

PROJECT ID	60612561
CREATED BY	[redacted]
LAST MODIFIED	[redacted]
VERSION:	1

Figure

1

A3 size



AECOM

N

DATUM GDA 1994, PROJECTION MGA ZONE 53

0 0.5 1 2 3 4

Kilometres

1:75,000 (when printed at A3)

LEGEND

- Quarterly Surface Water Locations
- Bi-annual Surface Water Locations
- Annual Surface Water With Biota Sampling Location
- Surface Water Management Area
- Groundwater Management Area
- RAAF Base Tindal
- Source Area
- Highway
- Road
- Track
- Katherine River
- Drainage

Data sources:

Base Data: Imagery (c) NTLIS

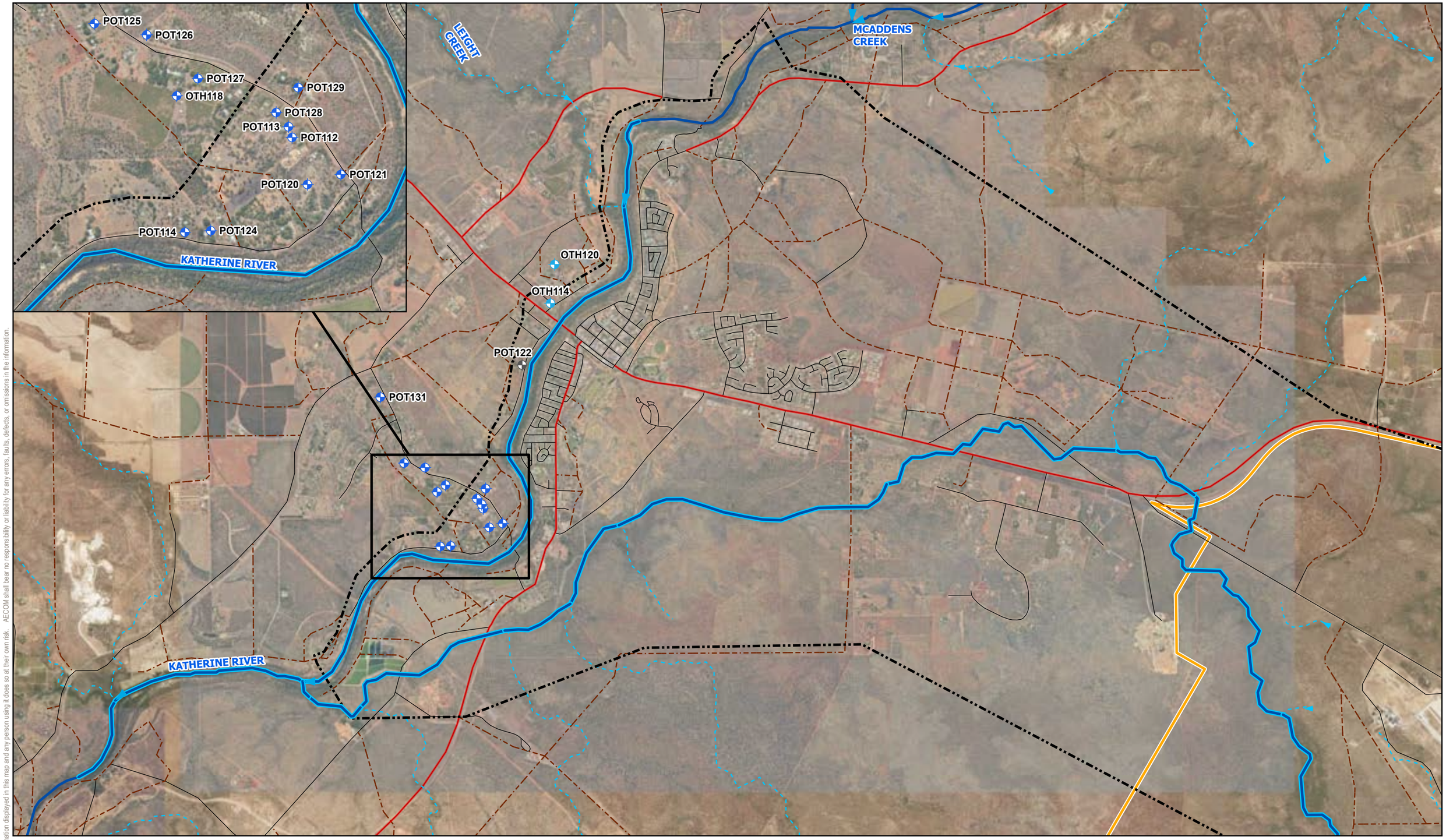
Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
DRY SEASON SAMPLING FACTUAL REPORT 2023

Surface Water Sample Locations

PROJECT ID	60612561
CREATED BY	[redacted]
LAST MODIFIED	[redacted]
VERSION:	1

Figure 2

A3 size



AECOM

N

DATUM GDA 1994, PROJECTION MGA ZONE 53

0 0.5 1 2

Kilometres

1:50,000 (when printed at A3)

LEGEND

- Private Property - Once in Dry Season
- Biannual Groundwater Monitoring Locations
- Not sampled – bore non-operational
- Surface Water Management Area
- Groundwater Management Area
- RAAF Base Tindal
- Highway
- Road
- Track
- Katherine River
- Drainage

Note:
OTH117 and OTH119 are not shown on map for privacy reasons

Data sources:

Base Data: Imagery (c) NTLIS

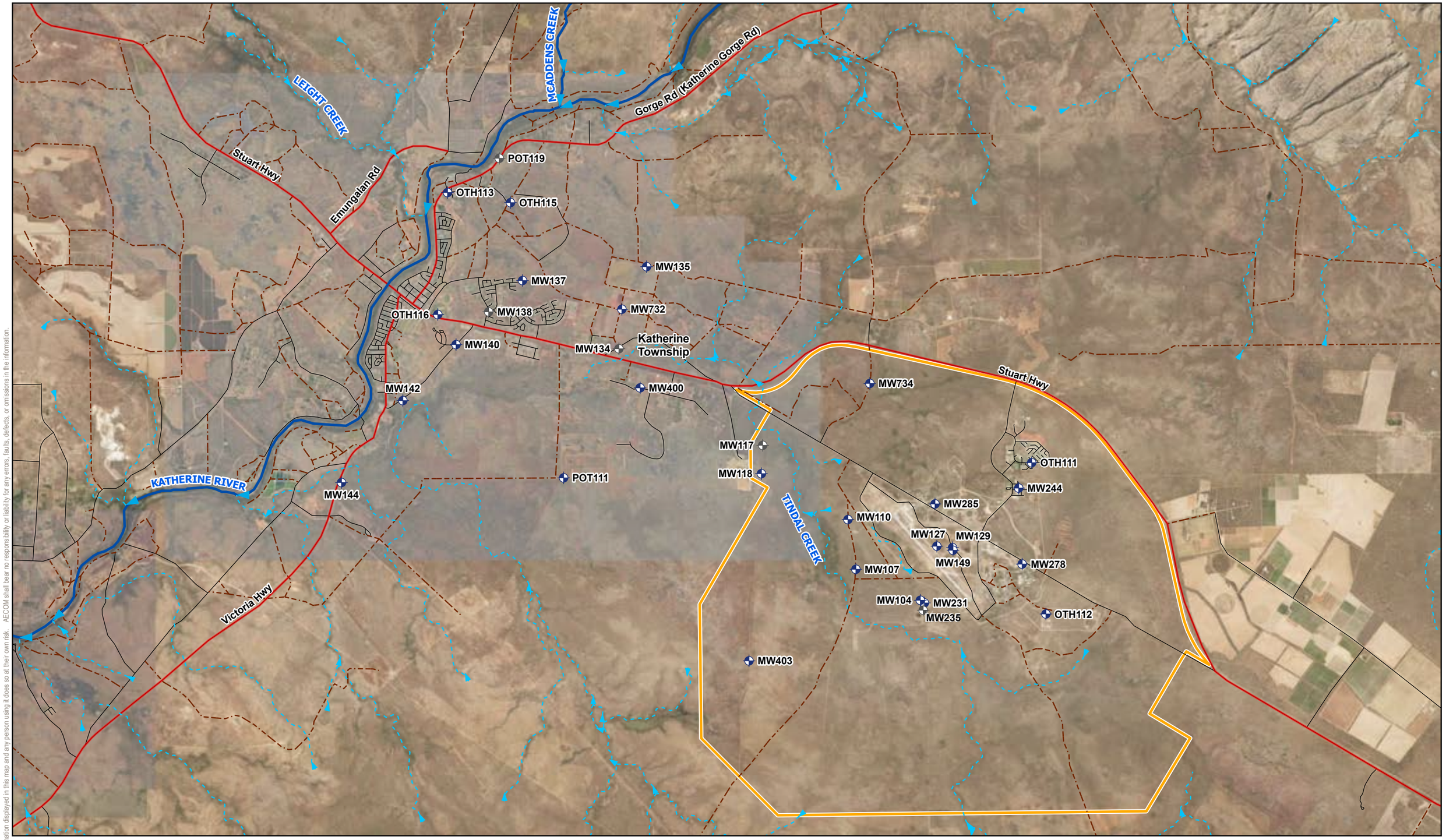
Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
DRY SEASON SAMPLING FACTUAL REPORT 2023

Off-Base Groundwater Sample Locations

PROJECT ID	60612561
CREATED BY	[redacted]
LAST MODIFIED	[redacted]
VERSION:	1

Figure 3

A3 size



AECOM

N

DATUM GDA 1994, PROJECTION MGA ZONE 52

0 1 2 4

Kilometres

1:85,000 (when printed at A3)

LEGEND

- Annual Groundwater Locations
- Not Sampled Due To Being Inaccessible, Dry or Blocked
- RAAF Base Tindal
- Road
- Track
- Highway
- Katherine River
- Drainage

Data sources:

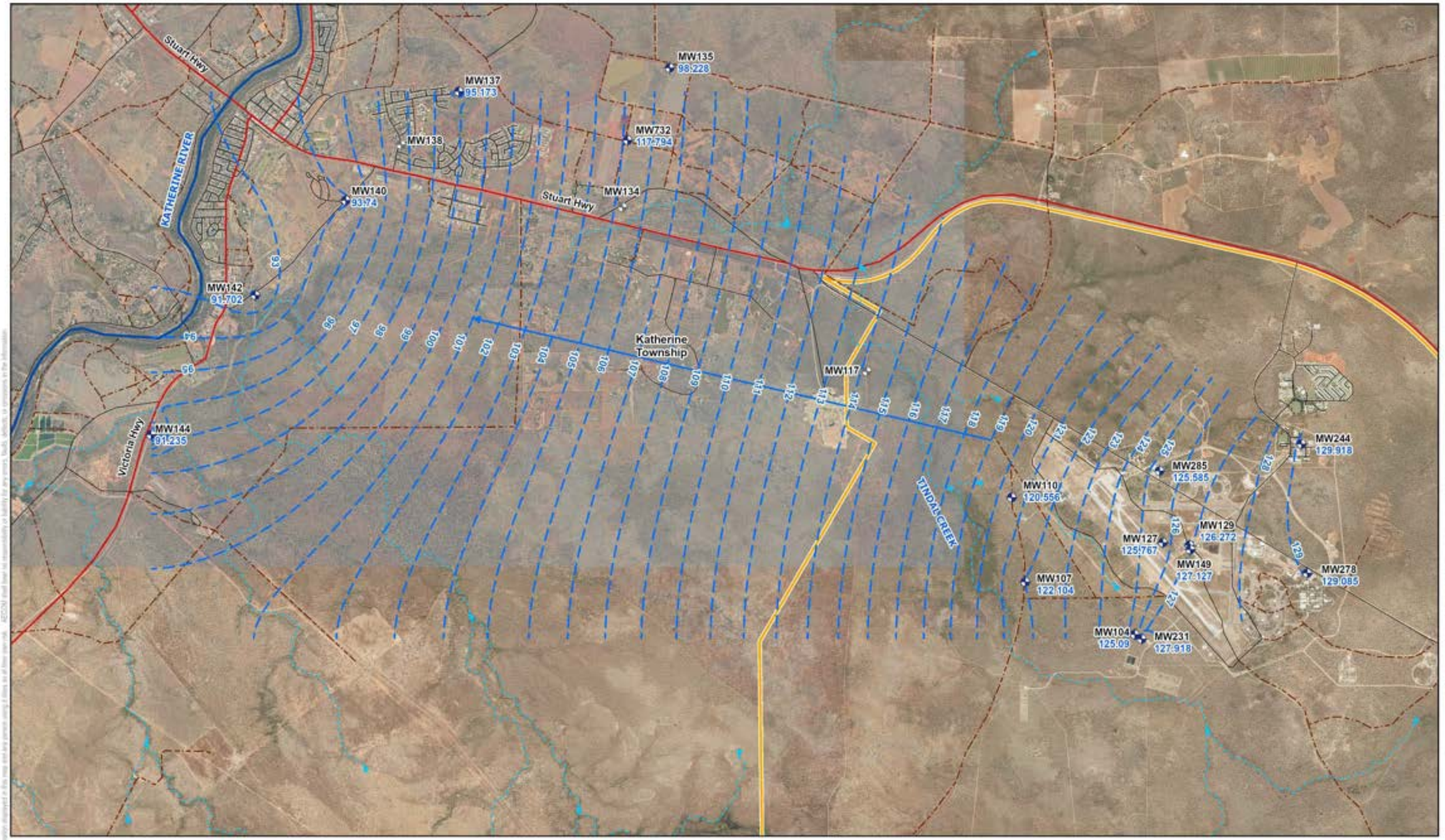
Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
DRY SEASON SAMPLING FACTUAL REPORT 2023
On and Off-Base Annual Groundwater Sampling Locations

PROJECT ID	60612561
CREATED BY	[redacted]
LAST MODIFIED	[redacted]
VERSION:	1

Figure 4

A3 size



AECOM

N

DATUM GDA 1994, PROJECTION MGA ZONE 52

0 0.5 1 2

Kilometres

1:50,000 (when printed at A3)

LEGEND

- Annual Groundwater Locations
- Not Sampled Due To Being Inaccessible, Dry or Blocked
- Inferred Groundwater Direction
- Inferred Groundwater Level
- RAAF Base Tindal
- Minor Creek
- Katherine River
- Drainage
- Highway
- Road
- Track

Data sources

Base Data: Imagery (c) NTLIS

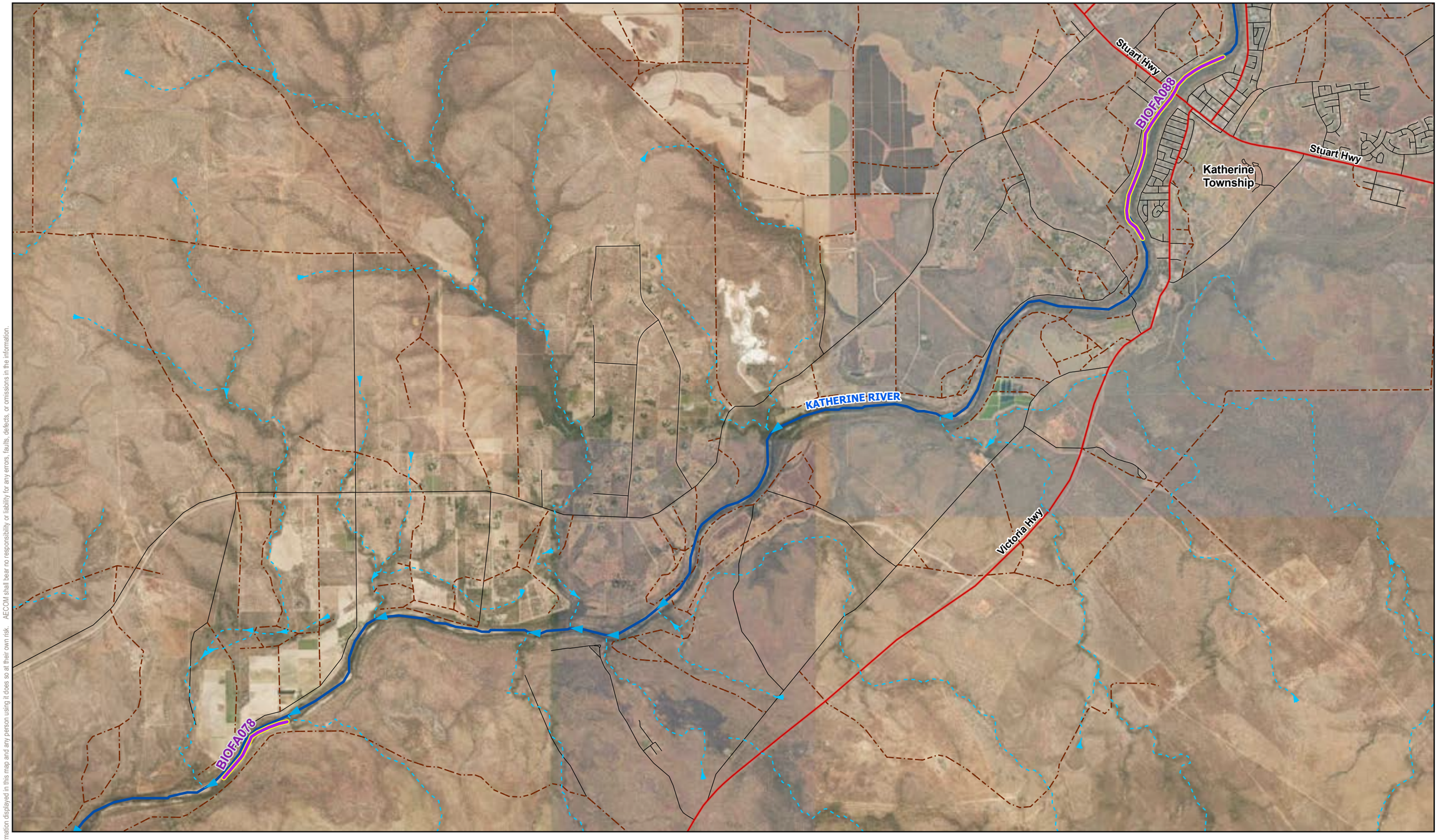
Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
DRY SEASON SAMPLING FACTUAL REPORT 2023

Groundwater Contours Sample Locations

[redacted]

Figure 5

A3 size



AECOM

N

DATUM GDA 1994, PROJECTION MGA ZONE 52

0 0.5 1 2

Kilometres

1:55,000 (when printed at A3)

LEGEND

- Biota Sampling Locations
- Highway
- Road
- Track
- Katherine River
- Drainage

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
DRY SEASON SAMPLING FACTUAL REPORT 2023

Biota Sample Locations

PROJECT ID	60612561
CREATED BY	[redacted]
LAST MODIFIED	[redacted]
VERSION:	1

Figure 6

A3 size

Appendix B

Tables

Appendix B - Table 1
Water Quality Parameters
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Table 1 - Surface Water Quality Parameters

Frequency	Location ID	Date	DO (mg/L)	EC (µS/cm)	pH	Redox (mV)	Redox (corr) (mV)	Temp (°C)	Turbidity	Flow	Water Colour	Odour	Sheen	Sample Method
Biannual	SW161	18/09/2023	4.02	85.4	7.84	97.6	297.6	30.9	Low	Low flow	Pale brown	No Odour	No Sheen	Sampling Pole
	SW110	18/09/2023	2.91	193.4	7.26	144.2	344.2	28.9	Low	Moderate	Pale brown	No Odour	No Sheen	Sampling Pole
	SW100	18/09/2023	4.33	665.0	7.68	231.5	431.5	30.2	Low	High flow	Pale brown	No Odour	No Sheen	Sampling Pole
Quarterly	OTH008	24/07/2023	5.71	1829.0	6.70	174.4	374.4	23.7	Low	Low flow	Colourless	Chlorine Odour	No Sheen	Grab
	SW108	24/07/2023	5.30	284.9	6.07	178.1	378.1	23.4	Low	Moderate	Colourless	No Odour	No Sheen	Sampling Pole
	SW153	24/07/2023	3.96	-	6.46	118.6	318.6	28.0	Low	Low flow	Colourless	No Odour	No Sheen	Sampling Pole
	OTH008	18/09/2023	5.22	2090.0	7.79	452.1	652.1	30.1	Low	Low flow	Colourless	Chlorine Odour	No Sheen	Grab
	SW108	18/09/2023	2.97	479.4	7.32	124.2	324.2	29.1	Low	Low flow	Pale brown	No Odour	No Sheen	Sampling Pole
	SW153	18/09/2023	2.97	785.0	7.43	215.2	415.2	29.8	Low	Low flow	Colourless	No Odour	No Sheen	Sampling Pole

Notes:
NM: not measured - data collection error
mg/L: milligram per Litre
µS/cm: microsiemens per centimetre
mV: millivolts
°C: degrees celcius
Corrected redox = redox + 200
EC outlier for SW153

Appendix B - Table 2
Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table 2 - Surface Water Analytical Results

AECOM

						PFAS Full Suite																												
						10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS	Sum of PFHxS and PFOS	Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluorohexane sulfonic acid (PFHxS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.02	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																															**0.07**		**0.56**	
PFAS NEMP 2020 Freshwater 99%																																0.00023	19	
PFAS NEMP 2020 Recreation Water																															*2*		*10*	
Location	**Date**	**Field ID**	**Frequency**	**Sample Type**	**Lab Report**																													
OTH008	24/07/2023	0990_OTH008_230724	Quarterly	Primary	ES2325102	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	**0.07**	0.04	<0.01	0.03
OTH008	18/09/2023	0990_OTH008_230918	Quarterly	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	**0.07**	0.03	<0.01	0.04
SW108	24/07/2023	0990_SW108_230724	Quarterly	Primary	ES2325102	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.16	**0.16**	0.1	<0.01	0.06
SW108	24/07/2023	0990_QC100_230724	Quarterly	Intra-lab Duplicate	ES2325102	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.16	**0.16**	0.1	<0.01	0.06
SW108	24/07/2023	0990_QC200_230724	Quarterly	Inter-lab Duplicate	RN1401149	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	0.108	**0.108**	0.058	<0.01	0.05
SW108	18/09/2023	0990_SW108_230918	Quarterly	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.05	<0.02	<0.02	0.25	**0.23**	0.14	<0.01	0.09
SW153	24/07/2023	0990_SW153_230724	Quarterly	Primary	ES2325102	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03	0.02	<0.01	0.01
SW153	18/09/2023	0990_SW153_230918	Quarterly	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
SW100	18/09/2023	0990_SW100_230918	Biannual	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.05	<0.02	<0.02	0.26	**0.24**	0.14	<0.01	0.1
SW110	18/09/2023	0990_SW110_230918	Biannual	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
SW161	18/09/2023	0990_SW161_230918	Biannual	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
SW161	18/09/2023	0990_QC202_230918	Biannual	Inter-lab Duplicate	RN1407025	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.1	<0.05	<0.01	<0.1	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	-	-	<0.02*	<0.01	<0.01
SW161	18/09/2023	0990_QC102_230918	Biannual	Intra-lab Duplicate	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
SW151	24/10/2023	0990_SW151_231024	Annual	Primary	ES2337465	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.2	**0.2**	0.1	<0.01	0.1
SW151	24/10/2023	0990_QC147_231024	Annual	Intra-lab Duplicate	ES2337465	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	**0.19**	0.1	<0.01	0.09
SW151	24/10/2023	0990_QC201_231024	Annual	Inter-lab Duplicate	RN1410901	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	0.014	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	0.013	<0.02	<0.02	<0.02	<0.01	-	-	0.14	<0.01	0.11

Notes:
µg/L: micrograms per litre
LOR: limit of reporting
* LOR is above guideline value
Denotes first time detection above LOR for Sum of PFHxS+PFOS or PFOA
Denotes new exceedance of human health screening criteria

Appendix B - Table 3
Water Quality Parameters
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Table 3 - Groundwater Water Quality Parameters

AECOM

		Gauging Results						Sampling Results											
Frequency	**Location ID**	**Date**	**TOC (AHD)**	**Depth to Water (mbtoc)**	**Well Depth (mbtoc)**	**Elevation (mAHD)**	**Well Condition**	**Date**	**DO (mg/L)**	**EC (µS/cm)**	**pH**	**Redox (mV)**	**Redox (corr) (mV)**	**Temp (°C)**	**Turbditiy**	**Water Colour**	**Odour**	**Sheen**	**Sample Method**
Private Property -	OTH117	-	-	-	-	-	Extraction bore	24/08/2023	6.58	614	7.55	96.6	296.6	25.4	Low	Colourless	No Odour	No sheen	Tap
Once in Dry Season	OTH118	-	-	-	-	-	Extraction bore	24/08/2023	3.9	577	7.67	72.2	272.2	34.6	Low	Colourless	No Odour	No sheen	Tap
	OTH119	-	-	-	-	-	Extraction bore	22/08/2023	1.78	71.3	6.64	95	295	30.2	Low	Colourless	No Odour	No sheen	Tap
	POT112	-	-	-	-	-	Extraction bore	23/08/2023	6.34	623	6.96	96.8	296.8	25.2	Low	Colourless	No Odour	No sheen	Tap
	POT113	-	-	-	-	-	Extraction bore	23/08/2023	2.63	680	6.96	96.8	296.8	29.7	Low	Colourless	No Odour	No sheen	Tap
	POT114	-	-	-	-	-	Extraction bore	23/08/2023	2.20	689	7.11	84.1	284.1	29.6	Low	Colourless	No Odour	No sheen	Tap
	POT120	-	-	-	-	-	Extraction bore	22/08/2023	3.84	723	7.2	73.1	273.1	31.8	Low	Colourless	No Odour	No sheen	Tap
	POT121	-	-	-	-	-	Extraction bore	23/08/2023	4.98	634	7.39	84.1	284.1	29.6	Low	Colourless	No Odour	No Sheen	Tap
	POT124	-	-	-	-	-	Extraction bore	24/08/2023	4.34	702	7.69	97.1	297.1	28.5	Low	Colourless	No Odour	No sheen	Tap
	POT125	-	-	-	-	-	Extraction bore	22/08/2023	3.03	628	7.04	88.3	288.3	28.4	Low	Colourless	No Odour	No sheen	Tap
	POT126	-	-	-	-	-	Extraction bore	22/08/2023	2.44	680	6.85	792	992	31.7	Low	Colourless	No Odour	No sheen	Tap
	POT127	-	-	-	-	-	Extraction bore	24/08/2023	1.61	694	7.01	89.3	289.3	32.2	Low	Colourless	No Odour	No sheen	Tap
	POT128	-	-	-	-	-	Extraction bore	23/08/2023	3.28	728	6.8	82.4	303.9	32.8	Low	Colourless	No Odour	No sheen	Tap
	POT129	-	-	-	-	-	Extraction bore	22/08/2023	2.73	769	6.91	88.4	288.4	36.7	Low	Colourless	No Odour	No sheen	Tap
	POT131	-	-	-	-	-	Extraction bore	23/08/2023	2.09	721	7.15	85.8	285.8	37.3	Low	Colourless	No Odour	No sheen	Tap
Biannual	OTH120	-	-	-	-	-	Extraction bore	18/09/2023	2.7	848	7.51	115.2	315.2	31.4	Low	Colourless	No Odour	No sheen	Tap
	OTH114	-	-	-	-	-	Extraction bore	18/09/2023	3.57	780	7.12	137.2	337.2	34.5	Low	Colourless	No Odour	No sheen	Tap
	POT122	-	-	-	-	-	Extraction bore	-	Bore not operational and property not safe to acess - not sampled										
Annual	MW104	19/09/2023	132.988	7.062	20.62	125.926	Good	25/09/2023	1.89	457	6.67	29.4	229.4	30.4	Low	Pale brown	No Odour	No sheen	Hydrasleeve
	MW107	19/09/2023	130.710	7.955	13.55	122.755	Good	27/09/2023	1.74	799	6.8	-22.7	177.3	27.7	Low	Colourless	Organic odour	No sheen	Hydrasleeve
	MW110	19/09/2023	126.970	5.798	12.05	121.172	Good	27/09/2023	3.28	746	6.73	34.3	234.3	24.2	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW118*	19/09/2023	120.530	17.540	20.50	102.990	Good	27/09/2023	1.09	899	6.58	-6.1	193.9	29.8	Moderate	Orange Brown	No odour	No sheen	Hydrasleeve
	MW127	20/09/2023	130.701	4.152	20.77	126.549	Good	26/09/2023	0.91	815	6.78	60.9	260.9	29.3	Low	Pale brown	No Odour	No sheen	Hydrasleeve
	MW129	20/09/2023	132.876	5.800	19.50	127.076	Good	26/09/2023	0.82	851	6.69	111.7	311.7	31.7	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW135	19/09/2023	117.300	19.072	19.67	98.228	Good	25/09/2023	1.89	687		57.9	257.9	30.2	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW137	20/09/2023	109.870	14.285	20.10	95.585	Broken gatic	25/09/2023	2.5	857	6.81	130.7	330.7	32.4	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW140	20/09/2023	102.845	8.518	18.99	94.327	Good	25/09/2023	2.79	655	6.83	104.2	304.2	32.7	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW142	19/09/2023	102.234	9.886	18.94	92.348	Good	25/09/2023	2.28	828	6.76	91.2	291.2	30	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW144	20/09/2023	101.234	9.755	20.12	91.479	Good	25/09/2023	0.9	1120	6.75	131.8	331.8	31	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW149	20/09/2023	133.500	6.437	-	127.063	Good	26/09/2023	1.17	638	6.99	63	263	29.5	Low	Pale brown	No Odour	No sheen	Hydrasleeve
	MW231	19/09/2023	134.524	7.964	24.00	126.560	Good	26/09/2023	1.12	372.4	6.28	-112.4	87.6	30.6	Low	White	No Odour	No sheen	Hydrasleeve
	MW244	20/09/2023	142.960	12.564	20.56	130.396	Good	26/09/2023	3.29	894	6.7	-54.7	145.3	34.3	Low	Colourless	Hydrocarbon odour	No sheen	Hydrasleeve
	MW278	20/09/2023	139.460	9.405	23.10	130.055	Good	26/09/2023	1.27	374.6	6.48	92.1	292.1	31.4	Low	Pale brown	No Odour	No sheen	Hydrasleeve
	MW285	20/09/2023	131.430	5.012	21.03	126.418	Good	26/09/2023	1.05	795	6.66	100.6	300.6	32.1	Low	Pale brown	No Odour	No sheen	Hydrasleeve
	MW400	20/09/2023	^	11.074	-	-	Good	25/09/2023	0.75	816	7.15	-63.2	136.8	30.9	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW403	19/09/2023	^	10.225	11.45	-	Good	27/09/2023	29.2	812	6.77	0.75	200.75	5.1	Low	Pale brown	No Odour	No sheen	Hydrasleeve
	MW732**	20/09/2023	^	11.982	-	-	Good	25/09/2023	0.89	150	6.96	-176.9	23.1	30.2	Low	Colourless	No Odour	No sheen	Hydrasleeve
	MW734	19/09/2023	^	-	-	-	Root impacted	-	No parameters due to root blockage at 3.58 mbTOC, alternative location dry.										
	OTH111	19/09/2023	^	14.020	64.00	-	Good	26/09/2023	2.84	494.4	7.71	63.4	263.4	32	Low	Colourless	No Odour	No sheen	Hydrasleeve
	OTH112	-	-	-	-	-	Extraction bore	26/09/2023	4.3	1021	6.7	97.1	297.1	34.4	Low	Colourless	No Odour	No sheen	Tap
	OTH113	-	-	-	-	-	Extraction bore	18/09/2023	2.75	879.1	7.44	101.8	301.8	32	Low	Colourless	No Odour	No sheen	Tap
	OTH115	-	-	-	-	-	Extraction bore	18/09/2023	4.33	872.1	7.75	150.3	350.3	32.6	Low	Colourless	No Odour	No sheen	Tap
	OTH116***	-	-	-	-	-	Extraction bore	25/09/2023	3.59	842	7.34	45.7	245.7	29.9	Low	Colourless	No Odour	No sheen	Tap
	POT111	-	-	-	-	-	Extraction bore	18/09/2023	2.43	963	7.65	228.5	428.5	38.2	High	Red	No Odour	No sheen	Tap
	POT119	-	-	-	-	-	Extraction bore	-	Access agreement not in place - not sampled										

Notes:
mg/L: milligram per Litre
µS/cm: microsiemens per centimetre
mV: millivolts
°C: degrees celcius
Corrected redox = redox + 200
* MW118 is a replacement well for MW117
** MW732 is a replacement well for MW134
*** OTH116 is a replacement site for MW138
^ TOC elevation not within DERP

Table 4 - Groundwater Analytical Results

PFAS Full Suite

						10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS	Sum of PFHxS and PFOS	Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluorohexane sulfonic acid (PFHxS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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						0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.02	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																																**0.07**		**0.56**	
PFAS NEMP 2020 Freshwater 99%																																	0.00023	19	
PFAS NEMP 2020 Recreational Water																																*2*		*10*	
Location Code	**Field ID**	**Sampled Date**	**Frequency**	**Sample Type**	**Lab Report Number**																														
POT120^	0990 POT120 230726	26/07/2023	Resample of April 2023 event	Primary	ES2325103	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
OTH117	0990 OTH117 230824	24/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
OTH118	0990 OTH118 230824	24/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
OTH119	0990 OTH119 230822	22/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
POT112	0990 POT112 230823	23/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	**0.08**	0.03	<0.01	0.05
POT113	0990 POT113 230823	23/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05	0.02	<0.01	0.03
POT114	0990 POT114 230823	23/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
POT120	0990 POT120 230822	22/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05	0.03	<0.01	0.02
POT121	0990 POT121 230823	23/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05	0.02	<0.01	0.03
POT124	0990 POT124 230824	24/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01	0.01	<0.01	<0.01
POT125	0990 POT125 230824	24/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
POT125	0990 QC103 230824	24/08/2023	Once in dry season, monthly in wet	Intra-lab Duplicate	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
POT125	0990 QC203 230824	24/08/2023	Once in dry season, monthly in wet	Inter-lab Duplicate	RN1404274	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	-	-	<0.02*	<0.01	<0.01
POT126	0990 POT126 230822	22/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
POT127	0990 POT127 230824	24/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
POT128	0990 POT128 230823	22/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
POT129	0990 POT129 230822	22/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
POT131	0990 POT131 230823	23/08/2023	Once in dry season, monthly in wet	Primary	ES2329042	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
OTH114	0990 OTH114 230918	18/09/2023	Biannual	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.05	<0.02	<0.02	0.32	**0.30**	0.19	<0.01	0.11
OTH120	0990 OTH120 230918	18/09/2023	Biannual	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
OTH120	0990 QC100 230918	18/09/2023	Biannual	Intra-lab Duplicate	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
OTH120	0990 QC200 230918	18/09/2023	Biannual	Inter-lab Duplicate	RN1407025	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	-	-	<0.02*	<0.01	<0.01
MW104	0990 MW104 230925	25/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.39	0.2	<0.02	<0.02	<0.02	0.2	0.1	0.82	<0.02	<0.02	0.28	0.21	<0.05	<0.02	<0.02	7.96	***5.52***	3.74	0.24	1.78
MW104	0990 QC100 230925	25/09/2023	Annual	Intra-lab Duplicate	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.36	0.3	<0.02	<0.02	<0.02	0.19	0.1	0.85	<0.02	<0.02	0.27	0.21	<0.05	<0.02	<0.02	7.31	***4.81***	3.11	0.22	1.7
MW104	0990 QC200 230925	25/09/2023	Annual	Inter-lab Duplicate	RN1407865	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	0.43	0.38	<0.01	<0.01	<0.01	0.17	0.11	0.76	<0.01	<0.01	0.28	0.22	<0.02	<0.02	<0.01	-	-	2.1	0.21	1.2
MW107	0990 MW107 230927	27/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	0.02	<0.02	<0.05	<0.02	<0.02	0.91	**0.81**	0.58	0.02	0.23
MW107	0990 QC101 230927	27/09/2023	Annual	Intra-lab Duplicate	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	0.02	<0.02	<0.05	<0.02	<0.02	0.93	**0.82**	0.57	0.02	0.25
MW107	0990 QC201 230927	27/09/2023	Annual	Inter-lab Duplicate	RN1407865	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.01	<0.05	0.039	0.072	<0.01	<0.01	<0.01	0.013	<0.01	0.036	<0.01	<0.01	0.031	<0.02	<0.02	<0.02	<0.01	-	-	0.65	0.013	0.34
MW110	0990 MW110 230927	27/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.24	<0.1	<0.02	<0.02	<0.02	0.13	0.06	0.42	<0.02	<0.02	0.21	0.09	<0.05	<0.02	<0.02	5.95	***4.66***	2.98	0.14	1.68
MW110	0990 QC102 230927	27/09/2023	Annual	Intra-lab Duplicate	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.21	<0.1	<0.02	<0.02	<0.02	0.13	0.05	0.37	<0.02	<0.02	0.19	0.08	<0.05	<0.02	<0.02	6.17	***5***	3.41	0.14	1.59
MW110	0990 QC202 230927	27/09/2023	Annual	Inter-lab Duplicate	RN1407865	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	0.26	0.086	<0.01	<0.01	<0.01	0.1	0.051	0.38	<0.01	<0.01	0.22	0.09	<0.02	<0.02	<0.01	-	-	2.1	0.11	1.1
MW118	0990 MW118 230927	27/09/2023	Annual - alternative	Primary	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.16	<0.1	<0.02	<0.02	<0.02	0.09	0.03	0.24	<0.02	<0.02	0.16	0.05	<0.05	<0.02	<0.02	3.86	***3.05***	1.87	0.08	1.18
MW118	0990 QC103 230927	27/09/2023	Annual - alternative	Intra-lab Duplicate	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.14	<0.1	<0.02	<0.02	<0.02	0.07	0.03	0.21	<0.02	<0.02	0.13	0.04	<0.05	<0.02	<0.02	3.29	***2.6***	1.6	0.07	1
MW118	0990 QC203 230927	27/09/2023	Annual - alternative	Inter-lab Duplicate	RN1407865	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	0.18	0.065	<0.01	<0.01	<0.01	0.061	0.027	0.23	<0.01	<0.01	0.16	0.047	<0.02	<0.02	<0.01	-	-	2	0.066	1.3
MW127	0990 MW127 230926	26/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.13	<0.1	<0.02	<0.02	<0.02	0.07	0.04	0.28	<0.02	<0.02	0.12	0.08	<0.05	<0.02	<0.02	4.52	***3.71***	2.71	0.09	1
MW129	0990 MW129 230926	26/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	0.28	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	6.58	2.9	<0.05	<0.05	<0.05	3.96	3.39	16.6	0.06	<0.05	6.34	5.52	<0.12	<0.05	<0.05	175	***124***	88	**5.37**	35.6
MW135	0990 MW135 230925	25/09/2023	Annual	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	**0.11**	0.06	<0.01	0.05
MW137	0990 MW137 230925	25/09/2023	Annual	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.05	<0.02	<0.02	0.4	**0.34**	0.19	<0.01	0.15
MW140	0990 MW140 230922	25/09/2023	Annual	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.23	**0.23**	0.15	<0.01	0.08
MW142	0990 MW142 230925	25/09/2023	Annual	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05	0.03	<0.01	0.02
MW144	0990 MW144 230922	25/09/2023	Annual	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
MW149	0990 MW149 230926	26/09/2023	Annual	Primary	ES2333199	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	28.1	8.6	0.06	0.02	<0.02	20.2	5.88	49.1	0.19	0.43	31.6	10	<0.05	<0.02	<0.02	649	***482.00***	261.00	***12.60***	221.00
MW149	0990 QC114 230926	26/09/2023	Annual	Intra-lab Duplicate	ES2333199	<0.5	<0.5	<0.5	<0.5	<1.25	<0.5	<1.25	<1.25	<0.5	<1.25	30.9	8.2	<0.5	<0.5	<0.5	19.7	5.85	43.9	<0.5	<0.5	28.4	11.1	<1.25	<0.5	<0.5	737	***575.00***	365.00	***13.80***	210.00
MW149	0990 QC214 230926	26/09/2023	Annual	Inter-lab Duplicate	RN1407903	<0.01	<0.01	0.06	0.04	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	30	8.8	<0.01	0.01	<0.01	14	5.9	39	0.27	0.22	25	12	<0.02	<0.02	<0.01	-	-	300.00	***11.00***	220.00
MW231	0990 MW231 9.0 230926	26/09/2023	Annual	Primary	ES2333198	<0.5	<0.5	64.8	8.68	<1.25	<0.5	<1.25	<1.25	<0.5	<1.25	495	227	<0.5	<0.5	<0.5	351	329	1910	14.8	<0.5	416	444	<1.25	<0.5	<0.5	9060	***4230***	1860	***568***	2370
MW244	0990 MW244 230926	26/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	2.61	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.53	0.5	<0.02	<0.02	<0.02	0.53	0.98	1.88	0.03	<0.02	0.64	1.37	<0.05	<0.02	<0.02	25.1	***15.3***	11.3	**0.76**	3.98
MW278	0990 MW278 230926	26/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.67	0.1	<0.02	<0.02	<0.02	0.39	0.1	0.88	<0.02	<0.02	0.62	0.18	<0.05	<0.02	<0.02	17	***13.8***	7.14	0.3	6.62
MW285	0990 MW285 230926	26/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.68	**0.65**	0.42	<0.01	0.23
MW400	0990 MW400 230925	25/09/2023	Annual	Primary	ES2333200	<0.05	<0.05	1.79	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.12	<0.1	<0.02	<0.02	<0.02	0.04	0.02	0.11	<0.02	<0.02	0.12	0.02	<0.05	<0.02	<0.02	4.02	**1.76**	1.24	0.04	0.52
MW403	0990 MW403 230927	27/09/2023	Annual	Primary	ES2333198	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
MW732	0990 MW732 230925	25/09/2023	Annual - alternative	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	0.03	<0.02	<0.05	<0.02	<0.02	0.55	**0.46**	0.3	<0.01	0.16
OTH111	0990 OTH111 230926	26/09/2023	Annual	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01	0.01	<0.01	<0.01
OTH112	0990 OTH112 230926	26/09/2023	Annual	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
OTH113	0990 OTH113 230918	18/09/2023	Annual	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	**0.19**	0.1	<0.01	0.09
OTH113	0990 QC101 230918	18/09/2023	Annual	Intra-lab Duplicate	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	**0.19**	0.1	<0.01	0.09
OTH113	0990 QC201 230918	18/09/2023	Annual	Inter-lab Duplicate	RN1407025	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	0.016	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.02	<0.02	<0.02	<0.01	-	-	0.08	<0.01	0.12
OTH115	0990 OTH115 230918	18/09/2023	Annual	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.22	**0.22**	0.13	<0.01	0.09
OTH116	0990 OTH116 230925	25/09/2023	Annual - alternative	Primary	ES2333200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	<0.1	<0.02	<0.02	<0.02	0.03	<0.02	0.06	<0.02	<0.02	0.09	<0.02	<0.05	<0.02	<0.02	1.38	**1.11**	0.67	0.02	0.44
POT111	0990 POT111 230918	18/09/2023	Annual	Primary	ES2332783	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01

Notes:
µg/L: micrograms per litre
LOR: limit of reporting
* LOR is above guideline value
^ Resampling event from April 2023 results
Denotes first time detection above LOR for Sum of PFHxS+PFOS or PFOA
Denotes new exceedance of human health screening criteria

Table 5 - Biota Analytical Results

AECOM

								PFAS																													
								10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS	Sum of PFOS+PFHxS	Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluorohexane sulfonic acid (PFHxS)
								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								0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.005	0.001	0.002	0.001	0.005	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.005	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Department of Health 2019 - Intake - Food - Fish																																		**0.0052**	**0.0052**	**0.041**	**0.0052**
Department of Health 2019 - Intake - Food - Crusteaceans																																		*0.065*	*0.065*	*0.52*	*0.065*
Location	**Date**	**Field ID**	**Fauna Group**	**Lab Report**	**Sample Type**	**Species**	**Weight (g)**																														
BIO078	24/10/2023	0990_BIOAFA463_231024	Fish	ES2337465	Primary	Barramundi (Lates calcarifer)	114	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.035	**0.035**	**0.035**	<0.001	<0.001
	24/10/2023	0990_QC152_231024	Fish	ES2337465	Intra-lab Duplicate	Barramundi (Lates calcarifer)	105	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.026	**0.026**	**0.026**	<0.001	<0.001
	24/10/2023	0990_BIOAFA464_231024	Fish	ES2337465	Primary	Barramundi (Lates calcarifer)	48.7	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.043	**0.043**	**0.043**	<0.001	<0.001
	24/10/2023	0990_QC153_231024	Fish	ES2337465	Intra-lab Duplicate	Barramundi (Lates calcarifer)	38.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.048	**0.048**	**0.048**	<0.001	<0.001
	24/10/2023	0990_BIOAFA465_231024	Fish	ES2337465	Primary	Barramundi (Lates calcarifer)	52.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.046	**0.046**	**0.046**	<0.001	<0.001
	24/10/2023	0990_QC154_231024	Fish	ES2337465	Intra-lab Duplicate	Barramundi (Lates calcarifer)	41.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.039	**0.039**	**0.039**	<0.001	<0.001
	24/10/2023	0990_BIOAFA466_231024	Fish	ES2337465	Primary	Barramundi (Lates calcarifer)	39.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.046	**0.046**	**0.046**	<0.001	<0.001
	24/10/2023	0990_QC155_231024	Fish	ES2337465	Intra-lab Duplicate	Barramundi (Lates calcarifer)	36.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.044	**0.044**	**0.044**	<0.001	<0.001
	24/10/2023	0990_BIOAFA467_231024	Fish	ES2337465	Primary	Bony Bream (Nematalosa erebi)	74.7	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.027	**0.027**	**0.027**	<0.001	<0.001
	24/10/2023	0990_BIOAFA468_231024	Fish	ES2337465	Primary	Bony Bream (Nematalosa erebi)	40.6	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.073	**0.073**	**0.073**	<0.001	<0.001
	24/10/2023	0990_BIOAFA469_231024	Fish	ES2337465	Primary	Bony Bream (Nematalosa erebi)	64.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.042	**0.042**	**0.042**	<0.001	<0.001
	24/10/2023	0990_BIOAFA470_231024	Fish	ES2337465	Primary	Butler's Grunter (Syncomistes butleri)	61.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.1	**0.1**	**0.1**	<0.001	<0.001
	24/10/2023	0990_BIOAFA471_231024	Fish	ES2337465	Primary	Butler's Grunter (Syncomistes butleri)	56.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.074	**0.074**	**0.074**	<0.001	<0.001
	24/10/2023	0990_BIOAFA472_231024	Fish	ES2337465	Primary	Butler's Grunter (Syncomistes butleri)	28.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.128	**0.128**	**0.128**	<0.001	<0.001
	24/10/2023	0990_BIOAFA473_231024	Fish	ES2337465	Primary	Sleepy Cod (Oxyeleotris lineolata)	47.6	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.05	**0.05**	**0.05**	<0.001	<0.001
	24/10/2023	0990_BIOAFA474_231024	Fish	ES2337465	Primary	Sleepy Cod (Oxyeleotris lineolata)	23.1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.092	**0.092**	**0.092**	<0.001	<0.001
	24/10/2023	0990_BIOAFA475_231024	Fish	ES2337465	Primary	Sleepy Cod (Oxyeleotris lineolata)	33.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.114	**0.114**	**0.114**	<0.001	<0.001
	24/10/2023	0990_BIOAFA476_231024	Fish	ES2337465	Primary	Black Catfish (Neosilurus ater)	29.6	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.174	**0.174**	**0.174**	<0.001	<0.001
	24/10/2023	0990_BIOAFA477_231024	Fish	ES2337465	Primary	Black Catfish (Neosilurus ater)	31.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.087	**0.087**	**0.086**	<0.001	0.001
	24/10/2023	0990_BIOAFA478_231024	Fish	ES2337465	Primary	Mullet (Planiliza ordensis)	54.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.144	**0.144**	**0.144**	<0.001	<0.001
	24/10/2023	0990_BIOAFA479_231024	Fish	ES2337465	Primary	Mullet (Planiliza ordensis)	51.1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.15	**0.15**	**0.15**	<0.001	<0.001
	24/10/2023	0990_BIOAFA480_231024	Fish	ES2337465	Primary	Mullet (Planiliza ordensis)	30.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.134	**0.134**	**0.134**	<0.001	<0.001
	24/10/2023	0990_BIOAFA481_231024	Fish	ES2337465	Primary	Mullet (Planiliza ordensis)	20.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.189	**0.189**	**0.189**	<0.001	<0.001
	24/10/2023	0990_BIOAFA482_231024	Crustacean	ES2337465	Primary	Cherabin (Macrobrachium spinipes)	32.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.03	0.03	0.029	<0.001	0.001
	24/10/2023	0990_BIOAFA483_231024	Crustacean	ES2337465	Primary	Cherabin (Macrobrachium spinipes)	26.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.017	0.017	0.016	<0.001	0.001
	24/10/2023	0990_BIOAFA484_231024	Crustacean	ES2337465	Primary	Cherabin (Macrobrachium spinipes)	27.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.028	0.028	0.027	<0.001	0.001
BIO088	23/10/2023	0990_BIOAFA441_231024	Fish	ES2337465	Primary	Barramundi (Lates calcarifer)	101	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.032	**0.032**	**0.032**	<0.001	<0.001
	23/10/2023	0990_QC148_231023	Fish	ES2337465	Intra-lab Duplicate	Barramundi (Lates calcarifer)	86.9	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.029	**0.029**	**0.029**	<0.001	<0.001
	23/10/2023	0990_BIOAFA442_231023	Fish	ES2337465	Primary	Barramundi (Lates calcarifer)	89.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.098	**0.098**	**0.098**	<0.001	<0.001
	23/10/2023	0990_QC149_231023	Fish	ES2337465	Intra-lab Duplicate	Barramundi (Lates calcarifer)	74.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.11	**0.11**	**0.11**	<0.001	<0.001
	23/10/2023	0990_BIOAFA443_231023	Fish	ES2337465	Primary	Barramundi (Lates calcarifer)	61.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.032	**0.032**	**0.032**	<0.001	<0.001
	23/10/2023	0990_QC150_231023	Fish	ES2337465	Intra-lab Duplicate	Barramundi (Lates calcarifer)	61.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.033	**0.033**	**0.033**	<0.001	<0.001
	23/10/2023	0990_BIOAFA444_231023	Fish	ES2337465	Primary	Blue Catfish (Neoarius graeffei)	37.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.013	**0.013**	**0.013**	<0.001	<0.001
	23/10/2023	0990_QC151_231023	Fish	ES2337465	Intra-lab Duplicate	Blue Catfish (Neoarius graeffei)	42.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.009	**0.009**	**0.009**	<0.001	<0.001
	23/10/2023	0990_BIOAFA445_231023	Fish	ES2337465	Primary	Blue Catfish (Neoarius graeffei)	35.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.023	**0.023**	**0.023**	<0.001	<0.001
	23/10/2023	0990_BIOAFA446_231023	Fish	ES2337465	Primary	Blue Catfish (Neoarius graeffei)	32.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.04	**0.04**	**0.04**	<0.001	<0.001
	23/10/2023	0990_BIOAFA447_231023	Fish	ES2337465	Primary	Bony Bream (Nematalosa erebi)	58.7	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.019	**0.019**	**0.019**	<0.001	<0.001
	23/10/2023	0990_BIOAFA448_231023	Fish	ES2337465	Primary	Bony Bream (Nematalosa erebi)	60.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.079	**0.079**	**0.079**	<0.001	<0.001
	23/10/2023	0990_BIOAFA449_231023	Fish	ES2337465	Primary	Bony Bream (Nematalosa erebi)	45.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.038	**0.038**	**0.038**	<0.001	<0.001
	23/10/2023	0990_BIOAFA450_231023	Fish	ES2337465	Primary	Sleepy Cod (Oxyeleotris lineolata)	21.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.027	**0.027**	**0.027**	<0.001	<0.001
	23/10/2023	0990_BIOAFA451_231023	Fish	ES2337465	Primary	Sooty Grunter / Black Bream (Hephaestus fuliginosus)	43.9	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.042	**0.042**	**0.042**	<0.001	<0.001
	23/10/2023	0990_BIOAFA452_231023	Fish	ES2337465	Primary	Butler's Grunter (Syncomistes butleri)	39.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.074	**0.074**	**0.074**	<0.001	<0.001
	23/10/2023	0990_BIOAFA453_231023	Fish	ES2337465	Primary	Butler's Grunter (Syncomistes butleri)	36.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.027	**0.027**	**0.027**	<0.001	<0.001
	23/10/2023	0990_BIOAFA454_231023	Fish	ES2337465	Primary	Black Catfish (Neosilurus ater)	36	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.11	**0.11**	**0.11**	<0.001	<0.001
	23/10/2023	0990_BIOAFA455_231023	Fish	ES2337465	Primary	Berney's Catfish (Neoarius berneyi)	29.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.042	**0.042**	**0.042**	<0.001	<0.001
	23/10/2023	0990_BIOAFA456_231023	Fish	ES2337465	Primary	Berney's Catfish (Neoarius berneyi)	30.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.082	**0.082**	**0.082**	<0.001	<0.001
	23/10/2023	0990_BIOAFA457_231023	Fish	ES2337465	Primary	Mullet (Planiliza ordensis)	74.3	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.07	**0.07**	**0.07**	<0.001	<0.001
	23/10/2023	0990_BIOAFA458_231023	Fish	ES2337465	Primary	Mullet (Planiliza ordensis)	70.1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.066	**0.066**	**0.066**	<0.001	<0.001
	23/10/2023	0990_BIOAFA459_231023	Fish	ES2337465	Primary	Mullet (Planiliza ordensis)	41.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.142	**0.142**	**0.142**	<0.001	<0.001
	23/10/2023	0990_BIOAFA460_231023	Crustacean	ES2337465	Primary	Cherabin (Macrobrachium spinipes)	52.7	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.073	*0.073*	*0.07*	<0.001	0.003
	23/10/2023	0990_BIOAFA461_231023	Crustacean	ES2337465	Primary	Cherabin (Macrobrachium spinipes)	69.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.013	0.013	0.013	<0.001	<0.001
	23/10/2023	0990_BIOAFA462_231023	Crustacean	ES2337465	Primary	Cherabin (Macrobrachium spinipes)	40.7	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.005	<0.001	<0.002	<0.001	<0.005	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.002	<0.002	<0.002	<0.001	0.109	*0.109*	*0.109*	<0.001	<0.001

Appendix C

Calibration Certificates & Field Logs

AECOM

Level 3, 9 Cavenagh Street
Darwin, Nt 0800

Water Quality Probe Calibration Sheet

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		Electrical conductivity 1413 (µS/cm)		ORP		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
24/7	C	25.9	3.87	4.00	6.95	7.00	–	–	1427	1413	221.7	230.0	[redacted]
25/7	C	24.8	4.00	-	7.01	-	–	–	1413	-	–	-	

AECOM

Level 3, 9 Cavenagh Street
Darwin, Nt 0800

Water Quality Probe Calibration Sheet

Date	YSI #	Temp °C	pH 4		pH 7		DO 100%		Electrical conductivity 1413 µS/cm		ORP		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
22/8	C	25.0	4.03	4.00	6.96	7.00	–	–	1429	1413	235.0	229.0	[redacted]
23/8	C	24.9	4.01	–	7.01	–	–	–	1417	–	229.1	230.0	
24/8	C	25.1	4.01	–	7.01	–	–	–	1417	–	230.0	–	

AECOM

Level 3, 9 Cavenagh Street
Darwin, Nt 0800

Water Quality Probe Calibration Sheet

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		Electrical conductivity 1413 (µS/cm)		ORP		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
8/8	C	25.9	4.23	4.00	7.03	7.00	–	–	1420	1413	231.0	230.0	[redacted]
9/8	C	25.0	4.01	4.00	7.01	–	–	–	1415	–	229.0	–	
10/8	C	25.2	4.00	–	7.00	–	–	–	1415	–	230.0	–	

AECOM

Sampling round: End of Dry GME Location: RAAF Tindal Project number & name: 60612561/60676801

PM: [redacted] Field staff: [redacted] Client: DoD

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		EC 1413 (µS/cm)		ORP (mV)		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
26-09-23	D	25.4	4.02	—	7.05	7.00	100	102%	1488	—	261.2	25.4	[redacted]
26-09-23	D	25.6	4.02	—	7.00	—	100	110%	1499	—	250.4	25.5	
27-09-23	D	25.7	4.10	4.00	6.90	7.01	100	98.2%	1510	—	225.2	25.2	
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						

Notes:

Sampling round: 202309 Location: TINDAL Project number & name: PFASOMP/PMAD 60612561 60678801

PM: [redacted] Field staff: [redacted] Client: DEFENCE

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		EC 1413 (µS/cm)		ORP (mV)		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
25/9	C	23.5	4.07	4.00	7.16	7.01	100		1260	1350	232.7	232.7	[redacted]
26/9	C	24.1	4.06	3.99	7.09	6.99	100		1377	1409	229.9	229.9	
27/9	C	24.4	4.01	4.01	6.99	6.99	100		1384	1384	230.6	230.6	
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						

Notes:

Private 01

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name:		Project Number:		PM Name:		Sample Date:	24/7/23
Client:		Project Location:		Fieldwork Staff:		Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.: #	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model: 451	☑ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y (N)	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install Time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☑ Other (specify) GRAB	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☑ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Location ID	Time	Type	QAQC?	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
BH0140	15:45	GRAB		5.71	1329	6.70	174.4	23.7	Clear, colourless, odourless, no sheen - Pool
SW06	16:09	"	1007 20	5.30	284.9	6.07	178.1	23.4	Clear, " - Boat Ramp
SW03	16:30	"		3.96	6.67	6.46	118.6	23.0	"
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Comments
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO_3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
0	2		x 40 mL Vial (H_2SO_4)		x 100 mL Amber		x 250 mL Plastic		
		2	x PFAS						

Approval and Distribution

[redacted]

ANZ

FQM - Groundwater Sampling and Purging Record

ECOM

Q4AN(EV)-405-FM1

Project Name:	RAOM	Project Number:	60612561	PM Name:	[redacted]	Bore ID:	
Client:	DEFENCE	Project Location:	Katherine	Fieldwork Staff:		Sample Date:	22/8/23
						Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info:	Decontamination:	Sampling Method:	Hydrasleeve Info:	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (pad / stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☒ Other (specify)	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☐ Retrieved		GRAB		Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Purged (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
POT157	10:20			5.49	702	6.84	57.7	27.2	Bore
POT196	10:24			5.70	779	7.31	42.1	24.6	Tank
POT198	10:48			5.09	689	6.84	89.6	28.3	Bore
POT201	10:50			2.75	705	7.11	76.3	30.1	bore
POT202	11:22			4.30	648	6.86	90.5	28.1	bore (top)
POT203	11:29			4.52	659	6.93	88.9	29.6	
POT208	12:58			2.81	894	6.94	-71.3	28.6	
POT204	13:18			3.88	657	7.11	76.5	~~30.6~~ 30.4	
POT120	14:28			3.84	723	7.20	73.1	31.8	
POT121	14:30			2.44	680	6.85	79.2	31.7	NO ODOUR
POT206	14:32			4.99	683	7.07	83.4	27.3	QC100 & 200 bore
POT207	14:35			42.0	716.3	7.85	95.1	28.6	
POT208	14:38			1.88	158.8	7.85	54.6	44.2	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected				QA/QC Information	Field Comments
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)		x 60 mL Ferrous	x 60 mL metals (NH4)	QC100 & QC200	Bore volume calculation, bore condition, fate of tubing, redox correction etc.
	X	x 40 mL Vial (H_2O_2)		x 100 mL Amber	x 250 mL Plastic		
[redacted]		2 x 20ml PFAS					

Approval and Distribution

[redacted]	25/8/23 Date	[redacted]	25/08/2023 Date
	25-8-23 Date	Distribution: Project Central File	

ANZ

FQM - Groundwater Sampling and Purging Record

AECOM

Q4AN(EV)-405-FM1

Project Name:	PFASOMP	Project Number:	60612561	PM Name:	[redacted]	Bore ID:	
Client:	DEFENCE	Project Location:	Katherine	Fieldwork Staff:		Sample Date:	22/8 - 23/8
						Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☒ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☒ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The no correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☒ Other (specify) GRAB	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☐ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
2:59	POT209			1.82	695	6.64	89.8	32.5	Bore QC101 & 201
3:15	POT210			3.73	663	7.00	77.5	28.7	
3:28	POT129			2.73	769	6.41	85.4	36.7	
4:00	POT119			1.78	713	6.64	95.0	30.2	
9:01	POT112			4.45	531	7.58	63.1	25.8	Fore tank
8:12	POT112			2.54	623	7.13	105.8	25.2	
9:12	POT211			2.80	671	7.05	99.4	29.4	Bore, QC102 & 202
9:39	POT113			2.63	680	6.96	96.8	29.7	
10:27	POT121			4.98	634	7.39	84.1	27.0	
10:45	POT114			3.10	689	7.11	84.1	29.6	
11:05	POT128			3.28	728	6.80	82.4	32.8	
11:32	POT213			3.17	640.8	7.87	51.6	29.7	Rainwater tanks, Pot corroded, closest to shed
14:37	POT214			2.52	632	7.78	55.4	33.7	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

23/8

Analytes Sampled for:		Bottles Collected				QA/QC Information	Field Comments
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO3)		QC101, QC201,	Bore volume calculation, bore condition, fate of tubing, redox correction etc.
	X	x 40 mL Vial (H2SO4)	x 100 mL Amber	x 250 mL Plastic		QC102, QC202	
[redacted]		2B x 30ml PFAS					

Approval and [redacted]

25/8/23 Date

25/8/23 Date

25/08/2023 Date

Distribution: Project Central File

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name:	PFASOMP DEFENCE	Project Number:	60612561	PM Name:	[redacted]	Bore ID:	
Client:		Project Location:	TINDAL/KATH	Fieldwork Staff:		Sample Date:	23/8 - 24/8
						Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Method	Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order)
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☒ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☒ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/kick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☒ Other (specify)	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☐ Retrieved		Grab		Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
15:16	POT 131			2.09	721	7.15	85.8	37.3	
7:01	OTH117			6.58	614	7.55	96.6	25.4	
7:01	POT215			5.22	22.7	8.57	56.4	22.2	
8:42	AT125			3.03	628	7.04	88.3	29.4	QC103 QC203
8:57	POT216			2.01	579	7.15	83.5	23.7	Bore tank → fresh hose (no foam)
9:05	POT 124			4.34	702	6.79	97.1	28.5	
11:35	OTH115			3.90	577	7.67	72.2	34.6	Bore @ back (trucks)
11:42	POT127			1.61	694	7.01	89.3	32.2	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected				QA/QC Information	Field Comments
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO3)		QC103	Bore volume calculation, bore condition, fate of tubing, redox correction etc.
	X	x 40 mL Vial (H2SO4)	x 100 mL Amber	x 250 mL Plastic		QC203	
		15 x 20mL PFAS					

[redacted]

Approval and [redacted]

25/8/23
Date

25-8-23
Date

[redacted]

25/8/23
Date

Distribution: Project Central File

ANZ

FQM - NAPL and Groundwater Level Gauging Record

AECOM

Q4AN(EV)-414-FM1

Project Name:	PFASOMP/PMAP	Project Location:	Tindal	PM Name:	[redacted]
Project Number:	60612561/60676	Client:	DoD	Fieldwork Staff Name:	

Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant column

Field Data

Well ID	Date (dd/mm/yy)	Time (24hr:mm)	HS Install (m)	Depth to LNAPL (mBTOC)	Depth to Groundwater (mBTOC)	LNAPL Thickness (m)	Depth to DNAPL (mBTOC)	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)
MW734	19/09/23	8:20	—	ND	ND	—	ND	—	—	Blocked w roots @ 3.58mbTOC
MW131		8:30	10.42		8.422			15.35		G-C NO NS.
MW117		9:10	—		ND			—		Blocked @ roots @ 8.43mbTOC
MW119		9:25	12.55		10.553			20.05		Clawed roots/impacted NO NS.
MW800		9:45	18.00		8.345			20.56		G-C, NO, NS.
MW362		10:00	Base		9.649			10.58		G-C NO NS added weight to top.
MW403		10:15	Base		10.189			11.45		G-C NO NS short WL as above.
MW801S		10:40	9.00		5.435			NM		D.L in well, G-C, NO, NS.
MW801I		10:40	18.00		5.448			NM		D.L in well, G-C, N.O, N.S.
MW106		11:00	9.00		6.975			10.20		G-C, NO, NS, roots on probe.
MW108D		11:10	47.0		7.168			>50		G-C, NO, NS
MW108I		11:20	28.0		7.255			31.11		G-C, NO, NS
MW108		11:30	10.0		7.976			12.80		G-C, NO, NS.
MW110		11:45	7.7		5.723			12.05		G-C, NO, NS
MW115		11:50	8.110		7.110			8.32		G-C NO NS
MW111I		11:55	28.0		7.330			30.45		G-C NO NS
MW111D		12:00	48.0.		7.111			750		G-C NO NS
MW113		13:40	8.0		5.943			15.10		G-C NO NS
MW232		14:00	10.0		8.124			18.90		G-C NO NS.
MW404		14:15	11.0		7.404			19.45		G-C, NO, NS

Measurement Equipment

Make & Model:	Solinst 2000	Supplier:	AECOM
Serial No.:	DRW002	Calibration Report Provided?	No.

Notes/Comments

ID) - photo ionisation detector, (ppm) - parts per million, (LNAPL) - light non-aqueous phase liquids; (DNAPL) - dense light non-aqueous phase liquid; (mBTOC) - metres below top of casing

HS - Hydrasleeve NS - no sheen D.L - datalogger

NO - No odour GC - good condition.

Approval and Distribution

[redacted] 19.09.23

Date

[redacted]

Distribution: Project Central File

ANZ

FQM - NAPL and Groundwater Level Gauging Record

AECOM

Q4AN(EV)-414-FM1

Project Name:	PFAS MW/ PMAP	**Project Location:**	Tindal	**PM Name:**	[redacted]
Project Number:	60612561 / 60676807	**Client:**	Defence	**Fieldwork Staff Name:**	

Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant column.

Field Data

Well ID	Date (dd/mm/yy)	Time (24hr clock)	HS install (m)	Depth to LNAPL (mBTOC)	Depth to Groundwater (mBTOC)	LNAPL Thickness (m)	Depth to DNAPL (mBTOC)	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)
MW133	19/9/23	8:00	8.142	ND	6.142	–	ND	20.13	–	GC, roots on probe, NO NS
MW132	"	8:20	[illegible]	ND	6.772	6.772	ND	16.991	–	GC, NO, NS
MW130	"	8:40	12.129	ND	10.129	–	ND	18.853	–	"
MW118S	"	9:10	19.540	"	17.540	–	"	20.495	–	GC, Roots on probe NO NS
MW118I	"	9:10	33	"	17.881	–	"	>30	–	GC NO NS
MW118D	"	9:10	48	"	17.877	–	"	>30	–	GC NO NS
MW325	"	10:33	12.792	"	10.792	–	"	>30	–	GC, NO, NS
MW107	"	11:15	4.886	"	7.886	–	"	13.551	–	Roots on probe
MW109D	"	11:32	18	"	5.465	–	"	>30	–	GC, NO NS
MW109	"	11:42	7.171	"	6.504	–	"	7.171	–	Few roots on probe NS NO GC
										[illegible], shallow well 2x weights
MW279	"	12:23	[illegible]	–	14.408	–	"	18.84	–	GC, NO, NS
BTH111	"	13:15	–	–	13.980	–	"	>30	–	
MW101	"	13:45	8.111	–	6.111	–	"	12.873	–	roots on probe, heavy struggle getting
MW422	"	14:40	7.655	–	5.655	–	"	26.40	–	HS in, NO, NS, GC
MW225	"	15:00	9	–	7.606	–	"	15.758	–	GC, NO, NS
MW224	"	15:15	10.57	–	8.575	–	"	15.790	–	
MW226	"	15:40	10.488	–	8.485	–	"	14.730	–	
MW142	"	16:41	11.837	–	9.837	–	"	18.935	–	Fine sand on probe, heavy casing NS, GC, NB

Measurement Equipment

Make & Model:	HERON	**Supplier:**	AECOM
Serial No.:		**Calibration Report Provided?**	No.

Notes/Comments

(PID) - photo ionisation detector (ppm) - parts per million; (LNAPL) - light non-aqueous phase liquid; (DNAPL) - dense light non-aqueous phase liquid; (mBTOC) - metres below top of casing

GC = good condition, NO = no odour, NS = no sheen

HS = Hydrus sleeve

Approval and Distribution

[redacted] 19/9/23 Date [redacted]

Distribution: Project Central File

ANZ

FQM - NAPL and Groundwater Level Gauging Record

AECOM

Q4AN(EV)-414-FM1

Project Name:	PFASCMP/ DMAP	Project Location:	TINDAL	PM Name:	[redacted]
Project Number:	60612561/60676801	Client:	DEFENCE	Fieldwork Staff Name:	

Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant column.

Field Data

Well ID	Date (dd/mm/yy)	Time (24hr:mm)	HS Install (m)	Depth to LNAPL (mBTOC)	Depth to Groundwater (mBTOC)	LNAPL Thickness (m)	Depth to DNAPL (mBTOC)	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)
MW146	20/9/23	7:15	10.518	–	8.518	–	–	18.995	–	GC, NS, NO
MW144	"	7:50	11.7	–	9.716	–	–	20.115	–	GC, NS, NO
MW124	"	10:37	7.04	–	5.045	–	–	20.430	–	GC, NS, NO
MW127	"	10:55	6.100	–	4.100	–	–	20.765	–	"
MW146	"	11:17	12	–	11.635	–	–	17.649	–	"
MW807	"	11:25	8.2	–	6.715	–	–	12.004	–	"
MW807D	"	11:30	16.6	–	6.765	–	–	19.345	–	"
MW149	"	12:04	12	–	6.343	–	–	17.661	–	"
MW406	"	12.21	10	–	5.640	–	–	19.325	–	"
MW277	"	13:32	11.4	–	9.405	–	–	23.10	–	"
MW285	"	14:30	7.01	–	5.012	–	–	21.03	–	"
MW304	"	15:45	–	–	4.719	–	–	>24.8	–	" roots on probe
MW302	"	15:53	–	–	7.289	–	–	12.754	–	GC, NO, NS
MW304	"	14.00	–	–	5.396	–	–	16.087	–	"

Measurement Equipment

Make & Model:	Heron	Supplier:	AECOM
Serial No.:		Calibration Report Provided?	No.

Notes/Comments

(PID) - photo ionisation detector, (ppm) - parts per million, (LNAPL) - light non-aqueous phase liquid, (DNAPL) - dense light non-aqueous phase liquid, (mBTOC) - metres below top of casing

GC = good condition NS = no sheen

NO = no odour HS = hydrocarbons

Approval and Distribution

[redacted]

20/9/23
Date

[redacted]

Distribution: Project Central File

ANZ

FQM - NAPL and Groundwater Level Gauging Record

AECOM

Q4AN(EV)-414-FM1

Project Name:	DMP/AMAP GME	Project Location:	Tindal	PM Name:	[redacted]
Project Number:	60612561 / 60676801	Client:	DoD	Fieldwork Staff Name:	

Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant column.

Field Data

Well ID	Date (dd/mm/yy)	Time (24hr:mm)	HS Install (m)	Depth to LNAPL (mBTOC)	Depth to Groundwater (mBTOC)	LNAPL Thickness (m)	Depth to DNAPL (mBTOC)	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)
MW8035	14:20	→ 19.09.23	9.9	ND	7.532	—	ND	NM	—	D.L in well G-C, NO NS
MW8031	14:25	→	14.0		7.914			NM		D.L in well G-C, NO NS
MW8030	14:30	→	18.0		7.958			NM		D.L in well G-C, NO NS.
MW231	19.09.23		9.9, 14, 18		8.681			23.47		G-C, NO NS, 3x HS installed
MW203		15:00	53		7.731			750		G-C, NO NS.
MW201		15:15	32.0		8.223			37.17		G-C, NO NS
MW2011		15:30	20.0		7.951			41.70		G-C, NO NS.
MW2012		15:35	24.0		10.162			18.45		TOC above monument, NO, NS.
MW202		15:45	29.0		8.122			18.00		G-C, NO, NS, wavy over groove
MW155		15:50	9.7		7.712			20.24		G-C, NO NS
MW104		16:20	9.0		7.062			20.62		G-C, NO, NS.
MW103		16:30	8.4		6.473			18.90		G-C, NO, NS
MW262		16:15	NS.		—			—		Blocked by BMD trenchwork
MW194		16:24	9.00		7.01			20.04		G-C, NO, NS
MW102		16:35	8.5	—	6.595		—	20.36	—	G-C, NO, NS.
MW137	20.09.23	8:25	16.2		14.285			20.10		Broken gatic NO, NS.
MW135		9:20	Broke		19.072			19.67		Missing j-cap, NO, NS, ROP.
MW134		MW734	instead.		—			—		Blocked - need s daconnis/replacement
MW125		10:25	7.0		5.025			18.50		G-C, NO, NS.
MW126D	↓	10:35	48.0	↓	5.043	↓	↓	>50	↓	G-C, NO, NS.

Measurement Equipment

Make & Model:	Solinst 220	Supplier:	AECOM
Serial No.:	DRW002	Calibration Report Provided?	N/A.

Notes/Comments

(PID) - photo ionisation detector, (ppm), - parts per million, (LNAPL) - light non-aqueous phase liquids, (DNAPL) - dense light non-aqueous phase liquid, (mBTOC) - metres below top of casing

ROP - roots on probe. G-C - good condition
NO - No odour NS - no sheen.

Approval and Distribution

[redacted] ture 20.09.23 Date [redacted]

Distribution: Project Central File

ANZ

FQM - NAPL and Groundwater Level Gauging Record

AECOM

Q4AN(EV)-414-FM1

Project Name:	PFASOMP/PMAP (M	Project Location:	RAAF Tindal	PM Name:	[redacted]
Project Number:	60612561/6067600	Client:	DoD	Fieldwork Staff Name:	

Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant column.

Field Data

Well ID	Date (dd/mm/yy)	Time (24hr:mm)	H9 Install (m)	Depth to LNAPL (mBTOC)	Depth to Groundwater mBTOC	LNAPL Thickness (m)	Depth to DNAPL (mBTOC)	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)
MW126I	20.09.23	10:46	34.0	ND	4.854	—	ND	36.0	—	G-C, NO, NS.
MW126	"	10:55	11.0	"	5.025	"	"	18.50	"	G-C, NO, NS.
MW145I		11:05	11.5	"	4.721	"	"	15.40	"	G-C, NO, NS new replacement.
MW8060		11:20	16.4	"	5.482	"	"	19.40	"	Flooded above TOC, GC, NO, NS
MW806I		11:30	8.0	"	5.421	"	"	11.01	"	GC, NO, NS.
MW129		11:40	7.7	"	5.740	"	"	19.50	"	G-C, old style gatic, NO, NS
MW147		12:15	13.0	"	5.320	"	"	10.36	"	G-C, NO, NS.
MW227		12:30	9,14,16	"	5.048	"	"	16.72	"	G-C, NO, NS
MW802D		12:35	18.0	"	5.671	"	"	NM	"	D-Line well, G-C, NO, NS
MW802I		12:40	14.0	"	5.772	"	"	NM	"	" " "
MW802S		12:45	9.0	"	5.784	"	"	NM	"	" " "
MW244		14:45	14.50	"	12.564	"	"	20.56	"	old style gatic, G-C, HC od, NS.
MW116		15:40	9.5	"	7.567	"	"	20.40	"	G-C, NO, NS
MW209		15:55	16.0	"	7.715	"	"	17.00	"	G-C, NO, NS
MW205		15:45	24.0	"	7.502	"	"	27.42	"	G-C, NO, NS
MW236		16:00	—	"	8.520	"	"	—	"	Blocked/dry @ 8.520mBTOC

Measurement Equipment

Make & Model:	Solinst 122	Supplier:	AECOM
Serial No.:	DRW002	Calibration Report Provided?	N/A

Notes/Comments

(PID) - photo ionisation detector; (ppm) - parts per million; (LNAPL) - light non-aqueous phase liquids; (DNAPL) - dense light non-aqueous phase liquid; (mBTOC) - metres below top of casing

Approval and Distribution

[redacted] — Date: 20.09.23

[redacted]

Distribution: Project Central File

ANZ

FQM - NAPL and Groundwater Level Gauging Record

AECOM

Q4AN(EV)-414-FM1

Project Name:	PMAP/PFASOMP	Project Location:	Tindal	PM Name:	[redacted]
Project Number:	60676801/60610567	Client:	DoD	Fieldwork Staff Name:	

Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant

Field Data

Well ID	Date (dd/mm/yy)	Time (24hr clock)	HS Install (m)	Depth to LNAPL (mBTOC)	Depth to Groundwater (mBTOC)	LNAPL Thickness (m)	Depth to DNAPL mBTOC	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)
MW400	20/09/23	10:30	13.0	ND	11.072	-	ND	>30m	-	G.C, NO, NS, locked.
MW732	〃	11:30	14.0	ND	11.982	-	ND	730m	-	G.C, NO, NS, replacement for MW135
MW251	26/09/23	13:37	N/A	ND	24.841	-	ND	25.43	-	G.C, NO, NS.

Measurement Equipment

Make & Model:	Solinst 225	Supplier:	AECOM
Serial No.:	DRW002	Calibration Report Provided?	N/A

Notes/Comments

(PID) - photo ionisation detector; (ppm) - parts per million; (LNAPL) - light non aqueous phase liquids; (DNAPL) - dense light non-aqueous phase liquid; (mBTOC) - metres below top of casing

Approval and Distribution

[redacted] 20.09.23 Date [redacted]

Distribution: Project Central File

Name	ProjectId	RiskDescription	DateApproved	PrimarySa	Secondary	QuoteId	Status
0990 OMP/PMAP	NT_0990_PFASOMP_23		Wed 27 Sep 2023 06:02:47 GMT			ES2022AE	WorkorderInLims

Sample Points

Id	Name	Description	CollectionDate	Lat	Lng	MatrixId	Onhold	pH	Conductivi	Temperatu	Dissolved	Redox Pot	Standing V	Observations
1	0990_MW104_230925	Extra volume for lab QC	25/09/2023 17:20			WATER	FALSE	6.67	457	30.4	1.89	29.4		Pale browr low turbidi no odour no sheen
2	0990_MW107_2309	Extra volume for lab QC	27/09/2023 9:07	-14.5238	132.3607	WATER	FALSE	6.8	799	27.7	1.74	-22.7	7.955	Roots in and on hydrasleeve no sheen organic odour clear colourles
3	0990_MW110_230927	Extra volime for lab QC	27/09/2023 7:53	-14.5019	132.3535	WATER	FALSE	6.73	746	24.2	3.28	34.3	5.798	No odour no sheen cloudy settling sediment at bottom brown
4	0990_MW118_230927	Extra volume for lab QC	27/09/2023 11:21			WATER	FALSE	6.58	899	29.8	1.09	-6.1	17.627	Orange brc moderate rootlets pr no odour no sheen
5	0990_MW127_230926		26/09/2023 8:09			WATER	FALSE	6.78	815	29.3	0.91	60.9	4.152	Pale browr low turbidi no odour no sheen
6	0990_MW129_230926		26/09/2023 11:48	-14.5192	132.3818	WATER	FALSE	6.69	851	31.7	0.82	111.7	5.8	No odour no sheen clear colourless some red sediment at bottom
7	0990_MW231_9.0_230926		26/09/2023 16:07			WATER	FALSE	6.28	372.4	30.6	1.12	-112.4	7.964	White low turbidi no odour no sheen
8	0990_MW244_230926		26/09/2023 14:07	-14.5069	132.397	WATER	FALSE	6.7	894	34.3	3.29	-54.7	12.612	Clear colotless some organic Matter hydrocarbon odour no sheen
9	0990_MW278_230926		26/09/2023 12:29			WATER	FALSE	6.48	374.6	31.4	1.27	92.1	9.472	Pale browr low turbidi no odour no sheen
10	0990_MW285_230926		26/09/2023 12:45			WATER	FALSE	6.66	795	32.1	1.05	100.6	5.069	Pale browr low turbidi no odour no sheen
11	0990_MW403_230927		27/09/2023 10:26			WATER	FALSE	6.77	812	29.2	0.75	5.1	10.225	Pale browr low turbidi no odour no sheen
20	0990_MW231_14.0_230926		26/09/2023 16:08			WATER	FALSE	6.05	370.3	31.5	0.53	-116.5		White moderate no odour no sheen
21	0990_MW231_22.0_230926		26/09/2023 16:14			WATER	FALSE	6.1	365.4	31.3	0.65	-113.2		White high turbic no odour no sheen

Name	ProjectId	DateApproved	QuoteId	Status
0990 PFASOMP	NT_0990_PFASOMP_23	Wed 27 Sep 2023 05:58:13	ES2022AE	WorkorderInLims

Sample Points

Id	Name	CollectionDate	MatrixId	Onhold	pH	Conductivi	Temperatu	Dissolved	Redox Pot	Standing V	Observations
1	0990_MW135_230925	25/09/2023 13:55	WATER	FALSE		687	30.2	1.89	57.9		Colourless no turbidit no odour no sheen
2	0990_MW732_230925	25/09/2023 13:14	WATER	FALSE	6.96	150.2	30.2	0.89	-176.9		Colourless no turbidit no odour no sheen replacement for MW135
3	0990_MW137_2309	25/09/2023 13:15	WATER	FALSE	6.81	857	32.4	2.5	130.7	14.344	Clear colourless no odour no sheen sediment at bottom
4	0990_OTH116_230925	25/09/2023 11:33	WATER	FALSE	7.34	842	29.9	3.59	45.7		Colourless clear no odour no sheen collected from sprinkler fed by bore
5	0990_MW140_230922	25/09/2023 12:49	WATER	FALSE	6.83	655	32.7	2.79	104.2	5.533	Sediment at bottom no odour no sheen colourless
6	0990_MW142_230925	25/09/2023 12:29	WATER	FALSE	6.76	828	30	2.28	91.2	9.886	Fine sand no sheen
7	0990_MW144_230922	25/09/2023 11:57	WATER	FALSE	6.75	1120	31	0.9	131.8	9.755	Red Sediments at bottom no odour no sheen
8	0990_MW400_230925	25/09/2023 12:27	WATER	FALSE	7.15	816	30.9	0.75	-63.2	11.074	Colourless no turbidit no odour no sheen
9	0990_OTH111_230926	26/09/2023 14:54	WATER	FALSE	7.71	494.4	32	2.84	63.4	14.02	Colourless no turbidit no odour no sheen
10	0990_OTH112_230926	26/09/2023 15:15	WATER	FALSE	6.7	1021	34.4	4.3	97.1		Clear colourless no odour no sheen

AECOM

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name:	PFASOMP	Project Number:	60612561	PM Name:	[redacted]	Sample Date:	18.09.23
Client:	DoD	Project Location:	Katherine	Fieldwork Staff:		Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.: #D	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model: 451	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / (N)	☒ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Installation:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☒ Other (specify) GRAB	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☒ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Location ID	Time	Type	QA/QC?	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
POT216	10:20	BORE	—	3.50	709	7.67	59.6	29.7	Spray/leak from headworks,
POT217	10:40	BORE	—	3.23	739	7.68	85.6	29.1	Collected from leak @ headworks
POT218	11:05	TAP	—	2.91	56.1	8.32	117.2	35.1	Tap fed by 3x tanks.
POT219	11:30	TAP	—	3.64	595.0	7.96	105.2	28.1	Garden tap fed by bore.
POT220	11:35	TAP	—	3.79	610.2	7.77	106.2	27.2	Kitchen sink tap fed by bore.
POT221	12:10	BORE	—	4.75	740.2	7.68	117.7	30.1	Valve from headworks.
POT222	13:05	TAP	—	4.85	704.1	7.97	139.2	29.2	Laundry sink fed by bore.
OTH120	13:55	BORE	QC100/200	2.70	848.2	7.51	115.2	31.4	New headworks collect from globe valve
OTH114	14:27	Bore	—	3.57	780.1	7.12	137.2	34.5	KTC - Civic Centre
OTH113	14:40	Bore	QC101/201	2.75	879.1	7.44	101.8	32.0	KTC - Museum,
OTH115	15:00	Bore	—	4.33	872.1	7.77	150.3	32.6	P+W - Old bore operating
POT111	16:45	Bore	—	2.43	963.0	7.65	228.5	38.2	Leak from headworks/sprinkler, red, hig
POT223	07:00	TAP	—	1.82	716.0	6.61	125.8	22.8	Sprinkler tap fed by bore next to hay fun
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

18/09

20/09

Analytes Sampled for:		Bottles Collected						QA/QC Information
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO3)		
		x 40 mL Vial (H2SO4)		x 100 mL Amber		x 250 mL Plastic		
0	2	2 x PFAS						

Field Comments

Bore volume calculation, bore condition, fate of tubing, redox correction etc.

All samples were colourless, clear, no odour, no sheen unless listed otherwise.

Approval and Dis[redacted]

[redacted] 18.09.23 — Project Manager Signature / Date

[redacted] 20-09-23 — e and Signature / Date

Distribution: Project Central File

ANZ Surface Water

FQM - ~~Groundwater~~ Sampling and Purging Record

AECOM

Q4AN(EV)-405-FM1

Project Name:	PFAS OMP	Project Number:	60612561	PM Name:	[redacted]	Sample Date:	18.09.23
Client:	DoD	Project Location:	Katherine.	Fieldwork Staff:		Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Purging Method	Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No..	☑ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / (N)	☑ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☑ Other (specify) GRAB	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☑ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Location ID	Time	Type	QA/QC?	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
SW101	15:30	Biannual	QC102/103	4.02	85.4	7.84	97.6	30.9	Pale brown, low turbidity, low flow, no odour/sheen
SW110	15:50	Biannual	—	2.91	193.4	7.26	144.2	28.9	Pale brown, low turbidity algae, mod flow
SW108	16:00	Quarterly	—	2.97	479.4	7.32	124.2	29.1	Pale brown, low turbidity flow, rubbish
OTH008	16:15	Quarterly	—	5.22	2,090	7.79	452.1	30.1	Colourless, clear, chlorine odour, swimmers
SW100	16:55	Biannual	—	4.33	665	7.68	231.5	30.2	Pale brown, high flow, no odour/sheen
SW153	17:15	Quarterly	—	2.97	785	7.43	215.2	29.8	Colourless, low turb, no odour/sheen, swimmers
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected						QA/QC Information
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO3)	
			x 40 mL Vial (H2SO4)		x 100 mL Amber		x 250 mL Plastic	
0	2	2	x PFAS					

Field Comments
Bore volume calculation, bore condition, fate of tubing, redox correction etc.

Approval and Distribution

[redacted] 18.09.23

Field [redacted] Date

Project Manager Signature Date

Distribution: Project Central File

Appendix D

Data Validation Report

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	14/08/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	16/08/2023
Lab reference:	July 2023: ES2325102, ES2325103, RN1401149, RN1401153		

Key Findings:

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for concentrations of PFOS to be below the LOR, but above the PFAS Freshwater 99% Species Protection guideline in all groundwater and surface water samples (with the exception of groundwater sample 0990_POT120_230726 which reported above the LOR and adopted guideline, and should be taken into consideration when interpreting results.
- The July surface water and groundwater monitoring events were completed in conjunction with an ad-hoc groundwater sampling event which has been reported separately. Parent samples for the field intra-laboratory and inter-laboratory duplicates reflect these ad-hoc locations. The data validation has been assessed as an all-inclusive event.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times			✓	1	No
Frequency of laboratory QA/QC		✓			No
Limits of reporting (LOR)			✓	2	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries		✓			No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other comments		✓			No

Comments

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	14/08/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	16/08/2023
Lab reference:	July 2023: ES2325102, ES2325103, RN1401149, RN1401153		

1. Sample handling/ preservation/ holding times

Laboratory batches were received outside of the recommended temperature range (≤6°C):

Batch Number	Temperature (°C)
ES2325102	18.2 °C
ES2325103	23.7 °C
RN1301153	Chilled
RN1401149	Chilled

Potential under reporting must be taken into consideration. However, the potential for under reporting is not considered to materially affect the interpretation of results due to the nature of PFAS not degrading via volatilisation. Further, the samples were received below the ambient groundwater and surface water temperature at the time of sampling (~30 °C) and the samples were immediately cooled upon collection

2. Limits of reporting

Limits of reporting (LOR) were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water.

The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) in all groundwater and surface water primary samples collected, excluding one sample 0990_POT120_230726 which reported above the LOR and adopted guideline. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

Data Validation Report
Field RPDs
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Relative Percentage Differences

AECOM

	Lab Report Number	ES2325102	ES2325102		ES2325103	ES2325103		ES2325103	ES2325103		ES2325103	ES2325103	
	Field ID	0990_SW108_230724	0990_QC100_230724	RPD	0990_POT150_230726	0990_QC103_230726	RPD	0990_POT143_230725	0990_QC100_230725	RPD	0990_POT147_230725	0990_QC101_230725	RPD
	Sample Type	Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate	
	Sampled Date/Time	24/07/2023 14:30	24/07/2023 14:30		26/07/2023 14:30	26/07/2023 14:30		25/07/2023 14:30	25/07/2023 14:30		25/07/2023 14:30	25/07/2023 14:30	
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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	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	<0.02	0	<0.02	<0.02	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<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	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<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	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Sum of PFAS	µg/L	0.01	0.16	0.16	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFHxS and PFOS	µg/L	0.01	0.16	0.16	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.1	0.1	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<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	0.06	0.06	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0

*RPDs have only been considered where a concentration is greater than 1 times the LOR.
**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Relative Percentage Differences

	Lab Report Number	ES2325102	RN1401149		ES2325103	RN1401153		ES2325103	RN1401153		ES2325103	RN1401153	
	Field ID	0990_SW108_230724	0990_QC200_230724	**RPD**	0990_POT150_230726	0990_QC203_230726	**RPD**	0990_POT143_230725	0990_QC200_230725	**RPD**	0990_POT147_230725	0990_QC201_230725	**RPD**
	Sample Type	Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate	
	Sampled Date/Time	24/07/2023 14:30	24/07/2023 14:30		26/07/2023 14:30	26/07/2023 14:30		25/07/2023 14:30	25/07/2023 14:30		25/07/2023 14:30	25/07/2023 14:30	
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	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.05	0	<0.1	<0.05	0	<0.1	<0.05	0	<0.1	<0.05	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Sum of PFAS	µg/L	0.01	0.16	0.108	12	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFHxS and PFOS	µg/L	0.01	0.16	0.108	12	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.1	0.058	53	<0.01	<0.02	0	<0.01	<0.02	0	<0.01	<0.02	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<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	0.06	0.05	18	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0

*RPDs have only been considered where a concentration is greater than 1 times the LOR.
**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Field Blanks

Lab Report Number		ES2325102	ES2325103	ES2325102	ES2325103	ES2325102	ES2325103
Field ID		0990_QC300_230724	0990_QC300_230725	0990_QC400_230724	0990_QC400_230725	0990_QC500_230724	0990_QC500_230725
Date		24/07/2023	25/07/2023	24/07/2023	25/07/2023	24/07/2023	25/07/2023
Sample Type		Rinsate	Rinsate	Field Blank	Field Blank	Trip Blank	Trip Blank
Analyte	**Units**	**LOR**						
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 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

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	12/09/2023
Site:	0990 – Katherine/Cossack private property sampling		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	13/09/2023
Lab reference:	August 2023: ES2329042, RN1404269		

Key Findings:

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) in all groundwater and surface water primary samples collected, this should be taken into consideration when interpreting the data.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times			✓	1	No
Frequency of laboratory QA/QC			✓	2	No
Limits of reporting (LOR)			✓	3	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries		✓			No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other comments		✓			No

Comments

1. Sample handling/ preservation/ holding times

Laboratory batches were received outside of the recommended temperature range (≤6°C):

Batch Number	Temperature (°C)
ES2329042	26.2 °C
RN1404269	Chilled

Potential under reporting must be taken into consideration. However, the potential for under reporting is not considered to materially affect the interpretation of results due to the nature of PFAS not degrading via volatilisation. Further, the samples were received below the ambient groundwater temperature at the time of sampling (~30 °C) and the samples were immediately cooled upon collection

AECOM

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	12/09/2023
Site:	0990 – Katherine/Cossack private property sampling		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	13/09/2023
Lab reference:	August 2023: ES2329042, RN1404269		

2. Frequency of lab QA/QC	Laboratory duplicate samples were not reported for PFAS method group. The precision of the data can be assessed as acceptable based on intra- and inter-laboratory duplicate RPDs which were reported at or above the required frequencies and within control limits. Matrix spikes were not reported at the required frequencies for PFAS method group. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits).
3. Limits of reporting	Limits of reporting (LOR) were sufficiently low to enable assessment against adopted guideline criteria, except for PFOS in water. The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) in all groundwater primary samples collected. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

Field QAQC

Lab Report Number	**ES2329042**	**ES2329042**	**ES2329042**	**ES2329042**	**ES2329042**	**ES2329042**	**ES2329042**
Field ID	0990_QC402_230824	0990_QC400_230822	0990_QC401_230823	0990_QC300_230822	0990_QC301_230823	0990_QC302_230824	0990_QC500_230822
Sampled_Date	24/08/2023	22/08/2023	23/08/2023	22/08/2023	23/08/2023	24/08/2023	22/08/2023
Sample Type	Field Blank	Field Blank	Field Blank	Rinsate	Rinsate	Rinsate	Trip Blank

Analyte	**Units**	**LOR**							
PFAS Full Suite									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	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	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<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	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	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
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<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
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<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	<0.1
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<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	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<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	<0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<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	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.02	<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	<0.02
Perfluoropentane sulfonic acid (PFPeS)	µg/L	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
Perfluorotetradecanoic acid (PFTeDA)	µg/L	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
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<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	<0.01
Sum of PFHxS and PFOS	µg/L	0.01	<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	<0.01
Perfluorooctanoic Acid (PFOA)	µg/L	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

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Relative Percentage Difference

	Lab Report Number	ES2329042	ES2329042		ES2329042	ES2329042		ES2329042	ES2329042		ES2329042	ES2329042	
	Field ID	0990 POT206 230822	0990 QC100 230822	RPD	0990 POT209 230822	0990 QC101 230822	RPD	0990 POT211 230823	0990 QC102 230823	RPD	0990 POT125 230824	0990 QC103 230824	RPD
	Sampled Date/Time	22/08/2023 14:30	22/08/2023 14:30		22/08/2023 14:30	22/08/2023 14:30		23/08/2023 14:30	23/08/2023 14:30		24/08/2023 14:30	24/08/2023 14:30	
	Sample Type	Primary	Intra-lab duplicate		Primary	Intra-lab duplicate		Primary	Intra-lab duplicate		Primary	Intra-lab duplicate	
Analyte	**Units**	**LOR**											
PFAS Full Suite													
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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	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	<0.02	0	<0.02	<0.02	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<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	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<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	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Sum of PFAS	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<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	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0

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

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are:
200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))

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

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Relative Percentage Difference

	Lab Report Number	ES2329042	RN1404274		ES2329042	RN1404274		ES2329042	RN1404274		ES2329042	RN1404274	
	Field ID	0990 POT206 230822	0990 QC200 230822	**RPD**	0990 POT209 230822	0990 QC201 230822	**RPD**	0990 POT211 230823	0990 QC202 230823	**RPD**	0990 POT125 230824	0990 QC203 230824	**RPD**
	Sampled Date/Time	22/08/2023 14:30	22/08/2023 14:30		22/08/2023 14:30	22/08/2023 14:30		23/08/2023 14:30	23/08/2023 14:30		24/08/2023 14:30	24/08/2023 14:30	
	Sample Type	Primary	Inter-lab duplicate		Primary	Inter-lab duplicate		Primary	Inter-lab duplicate		Primary	Inter-lab duplicate	
Analyte	**Units**	**LOR**											
PFAS Full Suite													
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.05	0	<0.1	<0.05	0	<0.1	<0.05	0	<0.1	<0.05	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Sum of PFAS	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.02	0	<0.01	<0.02	0	<0.01	<0.02	0	<0.01	<0.02	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<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	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0

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

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are:
200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))

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

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	16/10/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	17/10/2023
Lab reference:	September 2023: ES2332783, ES2333198, ES2333200, RN1047025, RN1047865		

Key Findings:

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for the September 2023 water results. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.
- The September monitoring event was completed in conjunction with an ad-hoc groundwater sampling event which has been reported separately. The data validation has been assessed as an all-inclusive event and therefore laboratory batch ES2332783 may reference some of these ad-hoc location IDs.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times			✓	1	No
Frequency of laboratory QA/QC			✓	2	No
Limits of reporting (LOR)			✓	3	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs			✓	4	No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries		✓			No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other comments		✓			No

Comments

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	16/10/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	17/10/2023
Lab reference:	September 2023: ES2332783, ES2333198, ES2333200, RN1047025, RN1047865		

1. Sample handling/ preservation/ holding times

Laboratory batches were received slightly outside of the recommended temperature range (≤6°C):

Batch Number	Temperature (°C)
ES2332783	5.2 °C
ES2333198	6.2 °C
ES2333200	6.2 °C
RN1047025	Chilled
RN1047865	Chilled

For primary batches ES2333198 and ES2333200, the minor exceedance of 0.2 °C is not expected to affect the results. The temperatures were recorded well below the ambient sample temperature at the time of sampling (~30°C) and samples were immediately cooled upon collection, the likelihood of under reporting is unlikely and immaterial to the interpretation of results.

2. Limits of reporting

Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water.

The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for the September 2023 water results. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

3. Frequency of laboratory QA/QC

Laboratory duplicate samples were not reported for at the requires frequency for PFAS in primary batches ES2333198 and ES2333200. The precision of the data can be assessed as acceptable based on intra- and inter-laboratory duplicate RPDs which were reported at the required frequencies and within control limits.

Matrix spikes were not reported at the required frequencies for PFAS method group in primary batches ES2332783 and ES2333200. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits), and available matrix spike recoveries for the same analytical method group (which were reported within control limits).

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	16/10/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	17/10/2023
Lab reference:	September 2023: ES2332783, ES2333198, ES2333200, RN1047025, RN1047865		

4. Inter-laboratory RPD's	Field inter-laboratory RPDs were reported within control limits, with the exception of the following (higher concentrations in **bold**): **ES2333198:** • **0990_MW104_230925** & 0990_QC200_230925 for PFOS (56%) • **0990_MW104_230925** & 0990_QC200_230925 for PFHxS (39%) • **0990_MW110_230927** & 0990_QC202_230927 for PFOS (35%) • **0990_MW110_230927** & 0990_QC202_230927 for PFHxS (42%) • 0990_MW107_230927 & **0990_QC202_230927** for PFHxS (39%) As results were well below or well above the adopted NEMP guidelines, the elevated RPD is not considered to affect the interpretation of results. However, the elevated RPD should be taken into consideration when using the data quantitatively.

Data Validation Report
QA/QC Blanks
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

QA/QC Blanks

AECOM

Lab Report	ES2332783	ES2332783	ES2333198	ES2333198	ES2333198	ES2333198	ES2333198	ES2333198	ES2332783	ES2332783
Field ID	0990_QC301_230920	0990_QC300_230918	0990_QC310_230925	0990_QC300_230925	0990_QC311_230926	0990_QC301_230926	0990_QC312_230927	0990_QC302_230927	0990_QC401_230920	0990_QC400_230918
Date	18/09/2023	18/09/2023	25/09/2023	26/09/2023	26/09/2023	26/09/2023	27/09/2023	27/09/2023	18/09/2023	18/09/2023
Type	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Field Blank	Field Blank

Analyte	Units	LOR										
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	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	0.05	<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	0.05	<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	0.05	<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	0.05	<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	0.02	<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
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	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	0.02	<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
Perfluorobutane sulfonic acid (PFBS)	µg/L	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	0.1	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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
Perfluorotetradecanoic acid (PFTeDA)	µg/L	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
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	<0.02	<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	<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	<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	<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
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

Data Validation Report
QA/QC Blanks
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

QA/QC Blanks

AECOM

Lab Report	ES2333198	ES2333198	ES2333198	ES2333198	ES2333198	ES2333198	ES2332783	ES2333198	ES2333198	ES2333198
Field ID	0990_QC410_230925	0990_QC400_230925	0990_QC411_230926	0990_QC401_220926	0990_QC412_230927	0990_QC402_230927	0990_QC500_230918	0990_QC510_230925	0990_QC500_230925	0990_QC511_230927
Date	25/09/2023	26/09/2023	26/09/2023	26/09/2023	27/09/2023	27/09/2023	18/09/2023	25/09/2023	26/09/2023	27/09/2023
Type	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank

Analyte	Units	LOR									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	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	0.05	<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	0.05	<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	0.05	<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	0.05	<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	0.02	<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
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	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	0.02	<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
Perfluorobutane sulfonic acid (PFBS)	µg/L	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	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<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
Perfluorotetradecanoic acid (PFTeDA)	µg/L	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
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	<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	<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	<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	<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
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

Data Validation Report
RPDs
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Relative Percentage Differences

	Lab Report	ES2332783	ES2332783		ES2332783	ES2332783		ES2332783	ES2332783		ES2333198	ES2333198		ES2333198	ES2333198	
	Field ID	0990_OTH120_230918	0990_QC100_230918	RPD	0990_OTH113_230918	0990_QC101_230918	RPD	0990_SW161_230918	0990_QC102_230918	RPD	0990_MW104_230925	0990_QC100_230925	RPD	0990_MW110_230927	0990_QC102_230927	RPD
	Sample Type	Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate	
	Date	18/09/2023	18/09/2023		18/09/2023	18/09/2023		18/09/2023	18/09/2023		25/09/2023	25/09/2023		27/09/2023	27/09/2023	
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	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<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-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<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 sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<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
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	0.39	0.36	8	0.24	0.21	13
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	0.2	0.3	40	<0.1	<0.1	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<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
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<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
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<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
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	0.2	0.19	5	0.13	0.13	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	0.1	0.1	0	0.06	0.05	18
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	0.82	0.85	4	0.42	0.37	13
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<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
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<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
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	0.28	0.27	4	0.21	0.19	10
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	0.21	0.21	0	0.09	0.08	12
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<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
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<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)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Sum of PFAS	µg/L	0.01	<0.01	<0.01	0	0.19	0.19	0	<0.01	<0.01	0	7.96	7.31	9	5.95	6.17	4
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	0	0.19	0.19	0	<0.01	<0.01	0	5.52	4.81	14	4.66	5	7
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	0.1	0.1	0	<0.01	<0.01	0	3.74	3.11	18	2.98	3.41	13
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	0.24	0.22	9	0.14	0.14	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	0	0.09	0.09	0	<0.01	<0.01	0	1.78	1.7	5	1.68	1.59	6

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Data Validation Report
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Relative Percentage Differences

	Lab Report	ES2333198	ES2333198		ES2333198	ES2333198		ES2332783	RN1407025		ES2332783	RN1407025		ES2332783	RN1407025	
	Field ID	0990_MW107_230927	0990_QC101_230927	RPD	0990_MW118_230927	0990_QC103_230927	RPD	0990_OTH120_230918	0990_QC200_230918	RPD	0990_OTH113_230918	0990_QC201_230918	RPD	0990_SW161_230918	0990_QC202_230918	RPD
	Sample Type	Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate	
	Date	27/09/2023	27/09/2023		27/09/2023	27/09/2023		18/09/2023	18/09/2023		18/09/2023	18/09/2023		18/09/2023	18/09/2023	
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	<0.05	<0.01	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	<0.05	<0.01	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	<0.05	<0.01	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	<0.05	<0.01	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.03	0.03	0	0.16	0.14	13	<0.02	<0.01	0	<0.02	0.016	0	<0.02	<0.01	0
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	<0.1	<0.05	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	<0.02	<0.01	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	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	0.09	0.07	25	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	0.03	0.03	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.03	0.04	29	0.24	0.21	13	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
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	<0.02	<0.01	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	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.02	0.02	0	0.16	0.13	21	<0.02	<0.01	0	<0.02	0.011	0	<0.02	<0.01	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	0.05	0.04	22	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<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	<0.02	<0.01	0	<0.02	<0.01	0
Sum of PFAS	µg/L	0.01	0.91	0.93	2	3.86	3.29	16	<0.01	<0.01	0	0.19	0.227	7	<0.01	<0.01	0
Sum of PFHxS and PFOS	µg/L	0.01	0.81	0.82	1	3.05	2.6	16	<0.01	<0.01	0	0.19	0.2	5	<0.01	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.58	0.57	2	1.87	1.6	16	<0.01	<0.02	0	0.1	0.08	22	<0.01	<0.02	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.02	0.02	0	0.08	0.07	13	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.23	0.25	8	1.18	1	17	<0.01	<0.01	0	0.09	0.12	29	<0.01	<0.01	0

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 5(
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories

Data Validation Report
RPDs
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Relative Percentage Differences

	Lab Report	ES2333198	RN1407865		ES2333198	RN1407865		ES2333198	RN1407865		ES2333198	RN1407865	
	Field ID	0990_MW104_230925	0990_QC200_230925	RPD	0990_MW110_230927	0990_QC202_230927	RPD	0990_MW107_230927	0990_QC201_230927	RPD	0990_MW118_230927	0990_QC203_230927	RPD
	Sample Type	Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate	
	Date	25/09/2023	25/09/2023		27/09/2023	27/09/2023		27/09/2023	27/09/2023		27/09/2023	27/09/2023	
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	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<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)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<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)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.39	0.43	10	0.24	0.26	8	0.03	0.039	26	0.16	0.18	12
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	0.2	0.38	62	<0.1	0.086	0	<0.1	0.072	0	<0.1	0.065	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	0.2	0.17	16	0.13	0.1	26	<0.02	0.013	0	0.09	0.061	38
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	0.1	0.11	10	0.06	0.051	16	<0.02	<0.01	0	0.03	0.027	11
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.82	0.76	8	0.42	0.38	10	0.03	0.036	18	0.24	0.23	4
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.28	0.28	0	0.21	0.22	5	0.02	0.031	43	0.16	0.16	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.21	0.22	5	0.09	0.09	0	<0.02	<0.02	0	0.05	0.047	6
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Sum of PFAS	µg/L	0.01	7.96	3.51	78	5.95	4.39	57	0.91	1.194	18	3.86	4.2	8
Sum of PFHxS and PFOS	µg/L	0.01	5.52	3.3	41	4.66	3.31	34	0.81	0.99	20	3.05	3.3	8
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	**3.74**	**2.1**	**56**	**2.98**	**2.1**	**35**	0.58	0.65	11	1.87	2	7
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.24	0.21	13	0.14	0.11	24	0.02	0.013	42	0.08	0.066	19
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	**1.78**	**1.2**	**39**	**1.68**	**1.1**	**42**	**0.23**	**0.34**	**39**	1.18	1.3	10

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 5(
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories

DATA VALIDATION REPORT; BIOTA and WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	08/12/2023
Site:	0990 – RAAF Tindal		
Matrix:	Biota and Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	15/12/2023
Lab reference:	ES2337465, RN1410901		

Key Findings:

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for the water samples from batch ES2337465. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times		✓			No
Frequency of laboratory QA/QC			✓	1	No
Limits of reporting (LOR)			✓	2	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs			✓	3	No
Matrix spike (MS) % recoveries			✓	4	No
Laboratory control spike (LCS) % recoveries			✓	5	No
Surrogate % recoveries		✓			No
Other comments		✓			No

Comments

1. Frequency of laboratory QA/QAC	Laboratory duplicate samples were not reported for PFAS in primary batches ES2337465. The precision of the data can be assessed as acceptable based on intra- and inter-laboratory duplicate RPDs which were reported at the required frequencies and generally within control limits. Matrix spikes were not reported at the required frequencies for PFAS method group in primary batches ES2337465. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits), and available matrix spike recoveries for the same analytical method group (which were reported within control limits).

DATA VALIDATION REPORT; BIOTA and WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	08/12/2023
Site:	0990 – RAAF Tindal		
Matrix:	Biota and Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	15/12/2023
Lab reference:	ES2337465, RN1410901		

2. Limits of reporting

Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water.

The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for the October 2023 water results. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

3. Field inter-laboratory RPDs

Field inter-laboratory RPDs were collected for the October 2023 biota sampling event. The results are pending and are due for validation in January 2024.

4. Matrix spike (MS) % recoveries

Matrix spike recoveries were not determined for PFOS in primary biota batch ES2337465 as background levels were greater than or equal to 4x spike levels. These non-determinations do not reflect method bias and do not affect data interpretation. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits), and available matrix spike recoveries for the same analytical method group (which were reported within control limits).

Matrix spike recoveries (where reported) were within control limits, with the following exceptions for the primary biota batch ES2337465:

Sample ID	Analyte	Recovery (%)	Range (%)	Comment
0990_BIOAFA442_231023	MeFOSA	117	88.1-105	Recovery greater than upper data quality objective
0990_BIOAFA442_231023	MeFOSA	118		
0990_BIOAFA442_231023	MeFOSA	80.2	81.6-144	Recovery less than lower data quality objective

The potential exists for concentrations of MeFOSA to be bias high by up to 18% for biota samples in this batch. As there is no adopted guideline value for MeFOSA the potential for over reporting is not expected to affect interpretation of the results against guidelines. However, this potential for over reporting should be taken into consideration when using the biota Sum of MeFOSA data quantitatively.

DATA VALIDATION REPORT; BIOTA and WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	08/12/2023
Site:	0990 – RAAF Tindal		
Matrix:	Biota and Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	15/12/2023
Lab reference:	ES2337465, RN1410901		

5. Laboratory Control Spikes (LCS) % recoveries

The following LCS recoveries were outside control limits within primary biota samples in batch ES2337465 and may affect data interpretation:

Analyte	Recovery (%)	Limits (%)	Comment
MeFOSA	124 & 111	88.1-105	Recovery greater than upper control limit
10:2 FTS	83.9, 87.0 & 91.2	93.4-130	Recovery less than lower control limit

The LCS recovery for MeFOSA was greater than the upper control limit, therefore the potential exists for concentrations of MeFOSA to be over reported by up to 24%. As there is no adopted guideline value for MeFOSA the potential for over reporting is not expected to affect interpretation of the results against guidelines. However, this potential for over reporting should be taken into consideration when using the data quantitatively.

The LCS recovery for 10:2 FTS was less than the lower control limit, therefore the potential exists for concentrations of 10:2 FTS to be under reported by up to 16.1%. As there is no adopted guideline value for 10:2 FTS the potential for under reporting is not expected to affect interpretation of the results against guidelines. However, this potential for under reporting should be taken into consideration when using the data quantitatively.

Data Validation Report
QA/QC Blanks
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

QA/QC Blanks

Lab Report Number	ES2337465	ES2337465	ES2337465
Field ID	0990_QC308_231025	0990_QC507_231027	0990_QC508_231025
Sampled Date	25/10/2023	27/10/2023	25/10/2023
Sample Type	Rinsate	Trip Blank	Trip Blank

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

Data Validation Report
Field RPDs - Biota
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Relative Percentage Difference

Lab Report Number	**ES2337465**	**ES2337465**		**ES2337465**	**ES2337465**		**ES2337465**	**ES2337465**		**ES2337465**	**ES2337465**	
Field ID	0990_BIOAFA441_231024	0990_QC148_231023	**RPD**	0990_BIOAFA442_231023	0990_QC149_231023	**RPD**	0990_BIOAFA443_231023	0990_QC150_231023	**RPD**	0990_BIOAFA444_231023	0990_QC151_231023	**RPD**
Sampled Date	23/10/2023	23/10/2023		23/10/2023	23/10/2023		23/10/2023	23/10/2023		23/10/2023	23/10/2023	
Sample Type	Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate	
Analyte	**Units**	**LOR**										
Per- and Polyfluoroalkyl Substances (PFAS) by LCMS												
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorobutanoic acid (PFBA)	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorononanoic acid (PFNA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Sum of PFAS	mg/kg	0.001	0.032	0.029	10	0.098	0.11	12	0.032	0.033	3	0.013	0.009	36
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.001	0.032	0.029	10	0.098	0.11	12	0.032	0.033	3	0.013	0.009	36
Perfluorooctanoic Acid (PFOA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
PFOS - Linear/Branched Speciation														
PFOS - Branched	mg/kg	0.001	0.005	0.003	50	0.014	0.013	7	0.004	0.003	29	0.001	0.001	0
PFOS - Linear	mg/kg	0.001	0.027	0.026	4	0.084	0.097	14	0.028	0.03	7	0.012	0.008	40
Prep-Preparation for Biota Analysis														
Sample Description	--		1	1	0	1	1	0	1	1	0	1	1	0
Weight of Sample Prepared	g	0.1	101	86.9	15	89.4	74.3	18	61.5	61.2	0	37.2	42.5	13

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))

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

Data Validation Report
Field RPDs - Biota
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Relative Percentage Difference

Lab Report Number	**ES2337465**	**ES2337465**		**ES2337465**	**ES2337465**		**ES2337465**	**ES2337465**		**ES2337465**	**ES2337465**	
Field ID	0990_BIOAFA463_231024	0990_QC152_231024	**RPD**	0990_BIOAFA464_231024	0990_QC153_231024	**RPD**	0990_BIOAFA465_231024	0990_QC154_231024	**RPD**	0990_BIOAFA466_231024	0990_QC155_231024	**RPD**
Sampled Date	24/10/2023	24/10/2023		24/10/2023	24/10/2023		24/10/2023	24/10/2023		24/10/2023	24/10/2023	
Sample Type	Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate	
Analyte	**Units**	**LOR**										
Per- and Polyfluoroalkyl Substances (PFAS) by LCMS												
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorobutanoic acid (PFBA)	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorononanoic acid (PFNA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Sum of PFAS	mg/kg	0.001	0.035	0.026	30	0.043	0.048	11	0.046	0.039	16	0.046	0.044	4
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.001	0.035	0.026	30	0.043	0.048	11	0.046	0.039	16	0.046	0.044	4
Perfluorooctanoic Acid (PFOA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
PFOS - Linear/Branched Speciation														
PFOS - Branched	mg/kg	0.001	0.004	0.002	67	0.004	0.004	0	0.005	0.004	22	0.005	0.004	22
PFOS - Linear	mg/kg	0.001	0.031	0.024	25	0.039	0.044	12	0.041	0.035	16	0.041	0.04	2
Prep-Preparation for Biota Analysis														
Sample Description	--		1	1	0	1	1	0	1	1	0	1	1	0
Weight of Sample Prepared	g	0.1	114	105	8	48.7	38.5	23	52.8	41.8	23	39.5	36.2	9

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))

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

Data Validation Report
Field RPDs
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Relative Percentage Difference

Lab Report Number	**ES2337465**	**ES2337465**		**ES2337465**	**RN1410901**		
Field ID	0990_SW151_231024	0990_QC147_231024	**RPD**	0990_SW151_231024	0990_QC201_231024	**RPD**	
Sampled Date	24/10/2023	24/10/2023		24/10/2023	24/10/2023		
Sample Type	Primary	Intra-lab Duplicate		Primary	Inter-lab Duplicate		

Analyte	**Units**	**LOR**						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMS								
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
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
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<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
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	0.014	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<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	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<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	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<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	<0.02	0.011	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<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	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	0.013	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<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	<0.01	0
Sum of PFAS	µg/L	0.01	0.2	0.19	5	0.2	0.25	22
Sum of PFHxS and PFOS	µg/L	0.01	0.2	0.19	5	0.2	0.25	22
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.1	0.1	0	0.1	0.14	33
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.1	0.09	11	0.1	0.11	10

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Appendix E

Chain of Custody

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Darwin	[Standard TAT may be longer for some tests e.g. Ultra Trace Organics] ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes No N/A
PROJECT: NT_0990_PFASOMP_23	ALS QUOTE NO.: SY/139/V3	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER: 60612561	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt	°C
[redacted]		Other comment:	

COC emailed to ALS? YES	EDD FORMAT (or default): ESDAT		
[redacted]	RELINQUISHED BY: [redacted] DATE/TIME: 24/07/2023 1600	RECEIV[redacted] DATE/TIME: 27/7/23 10:30	RELINQUISHED BY: ALS DATE/TIME:
			RECEIVED BY: [redacted] DATE/TIME: 31/7/23 1230

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: ESKY

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS - EP231X								
1	0990_POT134_230725	25-Jul-23	W	2 x PFAS	2	X								
2	0990_POT135_230725	25-Jul-23	W	2 x PFAS	2	X								
3	0990_POT136_230725	25-Jul-23	W	2 x PFAS	2	X								
4	0990_POT137_230725	25-Jul-23	W	2 x PFAS	2	X								
5	0990_POT138_230725	25-Jul-23	W	2 x PFAS	2	X								
6	0990_POT139_230725	25-Jul-23	W	2 x PFAS	2	X								
7	0990_POT140_230725	25-Jul-23	W	2 x PFAS	2	X								
8	0990_POT141_230725	25-Jul-23	W	2 x PFAS	2	X								
9	0990_POT142_230725	25-Jul-23	W	2 x PFAS	2	X								
10	0990_POT143_230725	25-Jul-23	W	2 x PFAS	2	X								Extra volume for lab QC
11	0990_POT144_230725	25-Jul-23	W	2 x PFAS	2	X								
12	0990_POT145_230725	25-Jul-23	W	2 x PFAS	2	X								
				TOTAL	24									

Environmental Division Sydney
Work Order Reference
ES2325103

Telephone : +61-2-8784 8555

LAB OF DARWIN

Subcontracting Laboratory: NO
Lab / Analysis: NMI
Organised By / Date:
Relinquished By / Date:
Courier / Courier: QC PAD
WO No: ES2325103
Attach PO / Internal Work

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS : ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Darwin	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes No N/A
PROJECT: NT_0990_PFASOMP_23	ALS QUOTE NO.: SY/139/V3	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: [redacted] 6 7	Random Sample Temperature on Receipt:	°C
[redacted]		Other comment:	
COC emailed to ALS? YES	EDD FORMAT (or default): ESDAT	RELINQUISHED BY: [redacted] DATE/TIME: 24/07/2023 1600	RECEIV[redacted] DATE/T[redacted] 27/7/23 10:38
[redacted]		RELINQUISHED BY: ALS DATE/TIME:	RECEIVED BY: [redacted] DATE/TIME: 31/7/23 1230

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: ESKY

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS - EP231X								
13	0990_POT149_230726	26-Jul-23	W	2 x PFAS	2	X								
14	0990_POT150_230726	26-Jul-23	W	2 x PFAS	2	X								Extra volume for lab QC
15	0990_POT151_230726	25-Jul-23	W	2 x PFAS	2	X								
16	0990_POT152_230726	25-Jul-23	W	2 x PFAS	2	X								
17	0990_POT153_230726	25-Jul-23	W	2 x PFAS	2	X								
18	0990_POT154_230726	25-Jul-23	W	2 x PFAS	2	X								
19	0990_POT155_230726	25-Jul-23	W	2 x PFAS	2	X								
20	0990_POT156_230726	25-Jul-23	W	2 x PFAS	2	X								
21	0990_POT157_230726	25-Jul-23	W	2 x PFAS	2	X								Dosnot exist
22	0990_QC103_230726	25-Jul-23	W	2 x PFAS	2	X								
23	0990_QC203_230726	25-Jul-23		2 x PFAS	2	X								PLS FORWARD TO [redacted] FOR ANALYSIS
				TOTALS	22									

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 Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Darwin	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes / No / N/A
PROJECT: NT_0990_PFASOMP_23	ALS QUOTE NO.: SY/139/V3	Free ice / frozen ice bricks present upon receipt?	Yes / No / N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 [redacted] 7	Random Sample Temperature on Receipt:	°C
[redacted]		Other comment:	
COC emailed to ALS? YES EDD FORMAT (or default): ESOAT	RELINQUISHED BY: [redacted] DATE/TIME: 24/07/2023 1600	RECEIVED [redacted] DATE/TIME: 10:30am 27/07/23	RELINQUISHED BY: ALS DATE/TIME:	R [redacted] DATE/TIME: 31/7/23 1230
[redacted]			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: ESKY

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS - EP231X	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
24	0990_POT146_230725	25-Jul-23	W	2 x PFAS	2	X	
25	0990_POT147_230725	25-Jul-23	W	2 x PFAS	2	X	Extra volume for lab QC
26	0990_POT148_230725	25-Jul-23	W	2 x PFAS	2	X	
27	0990_QC100_230725	25-Jul-23	W	2 x PFAS	2	X	
28	0990_QC200_230725	25-Jul-23	W	2 x PFAS	2	X	PLS FORWARD TO NMI FOR ANAYLSIS
29	0990_QC101_230725	25-Jul-23	W	2 x PFAS	2	X	
30	0990_QC201_230725	25-Jul-23	W	2 x PFAS	2	X	PLS FORWARD TO NMI FOR ANAYLSIS
31	0990_QC300_230725	25-Jul-23	W	2 x PFAS	2	X	
32	0990_QC400_230725	25-Jul-23	W	2 x PFAS	2	X	
33	0990_QC500_230725	25-Jul-23	W	2 x PFAS	2	X	
34	0990_POT120_230726						
				TOTAL	26		

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS : ☐ Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	FOR LABORATORY USE ONLY (Circle)
OFFICE:		Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP	ALS QUOTE NO.:	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	SY/198/22_V2	Random Sample Temperature on Receipt: °C
[redacted]		Other comment:

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

COC emailed to ALS? (YES / NO) Yes EDD FORMAT (or default): Esdat

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
[redacted]	[redacted]		[redacted]
DATE/TIME: 25/09/2023 6:30am	DATE/TIME: 25 SEP 2023 0945	DATE/TIME:	DATE/TIME: 26/9/23 0830

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).			Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS			
1	0990_POT216_230918	18/09/2023	W	PFAS	1	X			
2	0990_POT217_230918	18/09/2023	W	PFAS	1	X			
3	0990_POT218_230918	18/09/2023	W	PFAS	1	X			
4	0990_POT219_230918	18/09/2023	W	PFAS	1	X			
5	0990_POT220_230918	18/09/2023	W	PFAS	1	X			
6	0990_POT221_230918	18/09/2023	W	PFAS	1	X			
7	0990_POT222_230918	18/09/2023	W	PFAS	1	X			
8	0990_OTH120_230918	18/09/2023	W	PFAS	1	X			
9	0990_QC100_230918	18/09/2023	W	PFAS	1	X			Extra volume for lab QC
—	0990_QC200_230918	18/09/2023	W	PFAS	1	X			
10	0990_OTH114_230918	18/09/2023	W	PFAS	1	X			Pls forward to NMI for analysis
11	0990_OTH113_230918	18/09/2023	W	PFAS	1	X			
12	0990_OTH115_230918	18/09/2023	W	PFAS	1	X			

Environmental Division Sydney
Work Order Reference
ES2332783

Telephone : + 61-2-8784 8555

Subcon. Secretary only - Split WO
Lab / Analysis: NMI
Organised By / Date:
Relinquished By / Date:
Courier / Carrier: QC FWD
WO No: ES2332783
Attach Sig

LAB OF ORIGIN: DARWIN

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	FOR LABORATORY USE ONLY (Circle)	
OFFICE:		Custody Seal Intact?	Yes / No / N/A
PROJECT: NT_0990_PFASOMP	ALS QUOTE NO.:	Free ice / frozen ice bricks present upon receipt?	Yes / No / N/A
ORDER NUMBER: 60612561/3.1	SY/198/22_V2	Random Sample Temperature on Receipt:	°C
[redacted]	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Other comment:	

COC emailed to ALS? (YES / NO) Yes EDD FORMAT (or default): Esdat	RELINQUISHED BY: [redacted]	RECEIVED BY: [redacted]	RELINQUISHED BY:
[redacted]	DATE/TIME: 25/09/2023 6:30am	DATE/TIME: 25 SEP 2023 0845	DATE/TIME:

RECEIVED BY: [redacted] DATE/TIME: 26/9/23 0830

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	0990_POT111_230918	18/09/2023	W	PFAS	1	X								LAB OF ORIGIN: DARWIN
14	0990_POT223_230920	20/09/2023	W	PFAS	1	X								
15	0990_QC301_230920	20/09/2023	W	PFAS	1	X								
16	0990_QC401_230920	20/09/2023	W	PFAS	1	X								
17	0990_QC101_230918	18/09/2023	W	PFAS	1	X								
—	0990_QC201_230918	18/09/2023	W	PFAS	1	X								Pls forward to NMI for analysis
18	0990_OTH113_230918	18/09/2023	W	PFAS	1	X								Extra volume for lab QC
19	0990_QC300_230918	18/09/2023	W	PFAS	1	X								
20	0990_QC400_230918	18/09/2023	W	PFAS	1	X								
21	0990_QC500_230918	18/09/2023	W	PFAS	1	X								
22	0990_SW161_230918	18/09/2023	W	PFAS	1	X								Extra volume for lab QC
23	0990_SW110_230918	18/09/2023	W	PFAS	1	X								
24	0990_SW108_230918	18/09/2023	W	PFAS	1	X								
					TOTAL									

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS : ☐ Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	FOR LABORATORY USE ONLY (Circle)
OFFICE:		Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP	ALS QUOTE NO.:	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	SY/198/22_V2	Random Sample Temperature on Receipt: °C
[redacted]		Other comment:
COC emailed to ALS? (YES / NO) Yes EDD FORMAT (or default): Esdat		
[redacted]		

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
[redacted]	[redacted]		[redacted]
DATE/TIME: 25/09/2023 6:30am	DATE/TIME: 25 SEP 2023 0845	DATE/TIME:	DATE/TIME: 26/9/23 0830

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
25	0990_OTH008_230918	18/09/2023	W	PFAS	1	X								LAB OF ORIGIN: DARWIN
26	0990_SW100_230918	18/09/2023	W	PFAS	1	X								
27	0990_SW153_230918	18/09/2023	W	PFAS	1	X								
28	0990_QC102_230918	18/09/2023	W	PFAS	1	X								
—	0990_QC202_230918	18/09/2023	W	PFAS	1	X								P/s forward to NMI for analysis
				TOTAL										

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ✦ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP_23	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: [redacted]	OF: 1 [redacted] 5 (6) 7	Other comment:
SAMPLER: [redacted]	RELINQUISHED BY: [redacted] DATE/TIME: 10/8/23	RECEIVED BY: [redacted] DATE/TIME: 10/8/23 2:08
COC emailed to ALS? (YES / NO) EDD FORMAT (or default): [redacted]	RELINQUISHED BY: DATE/TIME:	RECEIVED BY: [redacted] DATE/TIME: 11/8/23 1230

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Forward QC200's to NMI Sydney

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS (Full Suite)	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	0990_Pot158_230808	8/8/23	W	2x PFAS	2		
2	0990_Pot159_230808						
3	0990_Pot160_230808						
4	0990_Pot161_230808						
5	0990_Pot162_230808						
6	0990_Pot163_230808						
7	0990_Pot164_230808						
8	0990_Pot165_230808						
9	0990_Pot166_230808						
10	0990_Pot167_230808						
11	0990_Pot168_230808						
12	0990_Pot169_230808						
				TOTAL			

LAB OF ORIGIN DARWIN

Subcontract / Forward Lab / Split WO: NMI
Lab / Analysis:
Organised By / Date:
Relinquished By / Date: QC FWD
Connote / Courier:
WO No: ES2326924
Attached By PO / Internal Sheets:

Environmental Division Sydney
Work Order Reference
ES2326924

Telephone : +61-2-8784 8555

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick: →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	FOR LABORATORY USE ONLY (Circle)
OFFICE:	◉ Standard TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP_23	☐ Non Standard or urgent TAT (List due date):	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	ALS QUOTE NO.: SY/139/19 V3	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: [redacted]	COC SEQUENCE NUMBER (Circle) COC: 1 (2) 3 4 5 6 7	Other comment:
SAMPLER: [redacted]	SOF: 1 [redacted] 5 (6) 7	
COC emailed to ALS? (YES (NO) EDD FORMAT (or default): [redacted]	RELINQUISHED [redacted] DATE/TIME: 10/8/23	RECEIVED [redacted] DATE/TIME: 10/8/23 2:00 pm
	RELINQUISHED BY: DATE/TIME:	RECEIVED BY: [redacted] DATE/TIME: 11/8/23 1230

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Forward QC200's to NMI Sydney

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS full suite							
13	0990_Pot170_230808	8/8/23	W	2 x PFAS	2								
14	0990_Pot171_230808												
15	0990_Pot172_230808												
16	0990_Pot173_230808												
17	0990_Pot132_230808												
18	0990_Pot174_230809	9/8/23											
19	0990_Pot175_230809												
20	0990_Pot176_230809												
21	0990_Pot177_230809												
22	0990_Pot178_230809												
23	0990_Pot179_230809												
24	0990_Pot180_230809												
					TOTAL								

LABORATORY DARWIN

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP_23	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
[redacted]	OF: 1 [redacted] 5 6 7	Other comment:
COC emailed to ALS? (YES) / (NO)	EDD FORMAT (or default):	

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
[redacted]	[redacted]		[redacted]
DATE/TIME: 10/8/23	DATE/TIME: 10/8/23 2:00 pm	DATE/TIME:	DATE/TIME: 11/8/23 0830

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Forward QC200's to NMI Sydney

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS full suite								
25	0990_Pot181_230809	9/8/23	W	2x PFAS	2	1								
26	0990_Pot182_230809	"	"	"	"	"								
27	0990_Pot183_230809	"	"	"	"	"								
28	0990_Pot184_230809	"	"	"	"	"								
29	0990_Pot185_230809	"	"	"	"	"								
30	0990_Pot186_230809	"	"	"	"	"								
31	0990_Pot187_230809	"	"	"	"	"								
32	0990_Pot188_230809	"	"	"	"	"								
33	0990_Pot189_230809	"	"	"	"	"								
34	0990_Pot190_230809	"	"	"	"	"								
35	0990_Pot191_230809	"	"	"	"	"								
36	0990_Pot192_230809	"	"	"	"	"								
					TOTAL									

DARWIN

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: (6) Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP_23	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 606125610.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 (4) 5 6 7 SF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
[redacted]		Other comment:
COC emailed to ALS? (YES / (NO) EDD FORMAT (or default):	RELINQUISHED BY: [redacted] DATE/TIME: 10/8/23	RECEIVED [redacted] DATE/TIME: 10/8/23 2:00 pm
[redacted]	RELINQUISHED BY: DATE/TIME:	RECEIVED BY: [redacted] DATE/TIME: 11/8/23 1230

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Forward QC200's to NMI Sydney

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS Full suite								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
37	0990_Pot193_230809	9/8/23	W	2 x PFAS	2	✓								
38	0990_Pot194_230809	9/8/23												
39	0990_Pot195_230810	10/8/23												
40	0990_Pot196_230810													
41	0990_Pot197_230810													
42	0990_Pot198_230810													
43	0990_Pot199_230810													
44	0990_Pot200_230810													
			→	✓	✓	✓								
					TOTAL									

LAB COPY DARWIN

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS : ◆ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_8990_PFASOMP_23	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 (5) 6 7	Random Sample Temperature on Receipt: °C
[redacted]	DF: 1 [redacted] 5 (6) 7	Other comment:
CDC emailed to ALS? (YES / NO) EDD FORMAT (or default):	RELINQUISHED BY: [redacted] DATE/TIME: 10/8/23	RECEIVED [redacted] DATE/TIME: 10/8/23 2:0[illegible] pm
[redacted]	RELINQUISHED BY: DATE/TIME:	RECEIVED BY: DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Forward QC200's to NMI Sydney

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS full Suite								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
4[illegible]4	0990-QC100-230808	8/8/23	W	2x PFAS	2	x								
[illegible]	0990-QC200-230808				2	x								Please send to ALS Brisbane
4[illegible]6	0990-QC300-230808				2	x								
5[illegible]41	0990-QC400-230808				2	x								
5[illegible]48	0990-QC500-230808			1x PFAS	1	x								
5[illegible]4[illegible]	0990-QC101-230808			2xPFAS	2	x								
[illegible]20	0990-QC201-230808				2	x								Please send to ALS Brisbane
5[illegible]5[illegible]	0990-QC102-230808				2	x								
[illegible]	0990-QC202-230808				2	x								Please send to ALS Brisbane
5[illegible]51	0990-QC301-230808				2	x								
5[illegible]52	0990-QC401-230808				2	x								
5[illegible]53	0990-QC103-230809	9/8/23			2	x								
				TOTAL	23	19								

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	FOR LABORATORY USE ONLY (Circle)
OFFICE:	⊕ Standard TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP_23	☐ Non Standard or urgent TAT (List due date):	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	ALS QUOTE NO.: SY/139/19 V3	Random Sample Temperature on Receipt: °C
[redacted]	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 [redacted] 7	Other comment:
COC emailed to ALS? (YES / NO) EDD FORMAT (or default):	RELINQUISHED BY: [redacted] DATE/TIME: 10/8/23	RECEIVED BY: [redacted] DATE/TIME: 10/8/23 2:09pm
[redacted]		RELINQUISHED BY: DATE/TIME:
		RECEIVED BY: [redacted] DATE/TIME: 11/8/23 1230

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Forward QC200's to NMI Sydney

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS Full suite								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
[redacted]	0990-QC203_230809	9/8/23	W	2x PFAS	2	x								Please send to ALS Brisbane
[redacted]	0990-QC202_230810	10/8/23	|	1	2	x								
[redacted]	0990-QC402_230810	10/8/23	|	|	2	x								
[redacted]	0990-QC104_230810	10/8/23	|	|	2	x								
[redacted]	0990-QC204_230810	10/8/23	↓	↓	2	x								Please send to ALS Brisbane
	[redacted]													
	[redacted]													
										DARWIN				
				TOTAL	10	5								

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS : ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: [redacted]	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0090_PFASOMP_23	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:60612561/3.2	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 [redacted] 6 7	Random Sample Temperature on Receipt: °C
[redacted]		Other comment:
COC emailed to ALS? (YES / NO) EDD FORMAT (or default): [redacted]	RELINQUISHED BY: [redacted] DATE/TIME: 25/8/23	RECEIVED: [redacted] DATE/TIME: 25/8/23 8:30
	RELINQUISHED BY: DATE/TIME:	RECEIVED BY: [redacted] DATE/TIME: 29/8/23 0830

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

Subcon / Forward with Split WO

Lab / Project Mgr:

Organised By / Date:

Relinquished By / Date:

Courier: QC FWD

WO No: ES2329042

Attach By PO / Internal Sheet:

LAB OF ORIGIN: DARWIN

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. suite codes must be listed to attract suite price) Where Metals are required, type of Total (Acid Extractable) or Dissolved (field filtered) is to be specified	Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS - Full Suite	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	0090_POT157_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
2	0090_POT196_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
3	0090_POT198_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
4	0090_POT201_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
5	0090_POT202_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
6	0090_POT203_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
7	0090_POT204_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
8	0090_POT205_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
9	0090_POT206_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
10	0090_POT207_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
11	0090_POT208_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
12	0090_POT209_230822	22/08/2023	W	2 X 20ml PFAS	2	X	
				TOTAL	24		

Environmental Division Sydney
Work Order Reference
ES2329042

Telephone : + 61-2-8784 8555

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP_23	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.2	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
[redacted]		Other comment:
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	RELINQUISHED BY: [redacted] DATE/TIME: 25/8/2023
[redacted]		RECEIVED BY: DATE/TIME:
		RELINQUISHED BY: DATE/TIME:
		RECEIVED BY: [redacted] DATE/TIME: 24/8/23 0830

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS - Full Suite								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	0990_POT219_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
14	0990_POT120_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
15	0990_POT214_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
16	0990_OTH110_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
17	0990_POT212_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
18	0990_POT213_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
19	0990_POT126_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
20	0990_POT128_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
21	0990_POT112_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
22	0990_POT211_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
23	0990_POT113_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
24	0990_POT131_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
				TOTAL	24									

LAB OF ORIGIN: DARWIN

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 Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory please tick →

ALS Environmental

DARWIN 21 Warner Road Berrimah NT 0828
Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053
Ph: 07 3243 7222 E: samplesbrisbane@alsglobal.com

GOLD COAST 74 Metroplex Circuit Gilston QLD 4211
Ph: 07 5644 1222 E: goldcoast@alsglobal.com

MELBOURNE 3-4 Westall Road Springvale VIC 3171
Ph: 03 8549 9600 E: samplesmelbourne@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164
Ph: 02 8784 8555 E: samplesreceivesydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818
Ph: +61 7 4796 0600 E: townsville@alsenviro.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500
Ph: 02 4225 3125 E: samplesreceivewollongong@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090
Ph: 08 9209 7655 E: perth.samples@alsglobal.com

BRISBANE 21 Warner Road Berrimah NT 0828
Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053
Ph: 07 3243 7222 E: samplesbrisbane@alsglobal.com

GOLD COAST 74 Metroplex Circuit Gilston QLD 4211
Ph: 07 5644 1222 E: goldcoast@alsglobal.com

MELBOURNE 3-4 Westall Road Springvale VIC 3171
Ph: 03 8549 9600 E: samplesmelbourne@alsglobal.com

NEWCASTLE 5/585 Maitland Rd New Lambton NSW 2305
Ph: 02 4014 2500 E: samplesreceivenewcastle@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164
Ph: 02 8784 8555 E: samplesreceivesydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818
Ph: +61 7 4796 0600 E: townsville@alsenviro.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500
Ph: 02 4225 3125 E: samplesreceivewollongong@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090
Ph: 08 9209 7655 E: perth.samples@alsglobal.com

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes / No / N/A
PROJECT: 60612561/3.2	ALS QUOTE NO.:	Free ice / frozen ice bricks present upon receipt?	Yes / No / N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt:	°C
[redacted]		Other comment:	

COC emailed to ALS? (YES / NO) [redacted]	ECD FORMAT (or default):	RELINQUISHED BY: [redacted] DATE/TIME: 25/08/2023	RECEIVED BY: DATE/TIME:
RELINQUISHED BY: DATE/TIME:	RECEIVED BY: [redacted] DATE/TIME: 24/8/23 OR30		

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS - Full Suite								
25	0990_POT121_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
26	0990_POT154_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
27	0990_OTH117_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
28	0990_POT215_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
29	0990_POT124_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
30	0990_POT125_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
31	0990_POT216_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
32	0990_OTH118_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
33	0990_POT127_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
34	0990_QC100_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
—	0990_QC200_230822	22/08/2023	W	2 X 20ml PFAS	2	X								Please send to NMI Sydney for analysis
35	0990_QC402_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
				TOTAL	34									

LAB OF ORIGIN: DARWIN

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; ST = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0090_PFASOMP_23	ALS QUOTE NO.: SY/135/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:60612561/3,2	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
[redacted]	OF: 1 2 3 4 5 6 7	Other comment:
COC emailed to ALS? (YES / NO) EDD FORMAT (or default): [redacted]	RELINQUISHED BY: [redacted] DATE/TIME: 29/08/2023	RECEIVED BY: DATE/TIME:
	RELINQUISHED BY: DATE/TIME:	RECEIVED BY: DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to ensure suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS - Full Suite								
36	0090_QC101_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
"	0090_QC201_230822	22/08/2023	W	2 X 20ml PFAS	2	X								Please send to NMI Sydney for analysis
37	0090_QC102_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
"	0090_QC202_230823	23/08/2023	W	2 X 20ml PFAS	2	X								Please send to NMI Sydney for analysis
38	0090_QC103_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
"	0090_QC203_230824	24/08/2023	W	2 X 20ml PFAS	2	X								Please send to NMI Sydney for analysis
39	0090_QC300_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
40	0090_QC400_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
41	0090_QC500_230822	22/08/2023	W	2 X 20ml PFAS	2	X								
42	0090_QC301_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
43	0090_QC401_230823	23/08/2023	W	2 X 20ml PFAS	2	X								
44	0090_QC302_230824	24/08/2023	W	2 X 20ml PFAS	2	X								
				TOTAL	24									

LAB OF ORIGIN: DARWIN

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; VS = 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; ST = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

COC#: 57498 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 29/9/23 0830

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

Subcon / Forward Lab / Split WO
Lab / Analysis: NMI
Organised By / Date:
Relinquished By / Date:
Connote / Courier: QC FWP
WO No: ES2333198
Attach By PO / Internal Sheet:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Water - PFAS WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_MW104_230925	Extra volume for lab QC	25/09/2023 05:20 PM	WATER	ALS: 2 Non ALS: 0	No	X		Extra volume for lab QC
002	0990_MW107_2309	Extra volume for lab QC	27/09/2023 09:07 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0990_MW110_230927	Extra volume for lab QC	27/09/2023 07:53 AM	WATER	ALS: 3 Non ALS: 0	No	X		
004	0990_MW118_230927	Extra volume for lab QC	27/09/2023 11:21 AM	WATER	ALS: 2 Non ALS: 0	No	X		
005	0990_MW127_230926		26/09/2023 08:09 AM	WATER	ALS: 2 Non ALS: 0	No	X		
006	0990_MW129_230926		26/09/2023 11:48 AM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_MW231_9.0_230926		26/09/2023 04:07 PM	WATER	ALS: 2 Non ALS: 0	No	X		

Environmental Division
Sydney
Work Order Reference
ES2333198

Telephone : + 61-2-8784 8555

CHAIN OF CUSTODY

COC#: 57498 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 24/9/23 0830

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGER [redacted]

PRIMARY SAMPLER

EMAIL REPORTS TO

TURNAROUND REQUIREMENTS : 5 Days

Biohazard Info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Water - PFAS WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_MW244_230926		26/09/2023 02:07 PM	WATER	ALS: 2 Non ALS: 0	No	X		
009	0990_MW278_230926		26/09/2023 12:29 PM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_MW285_230926		26/09/2023 12:45 PM	WATER	ALS: 2 Non ALS: 0	No	X		
011	0990_MW403_230927		27/09/2023 10:26 AM	WATER	ALS: 2 Non ALS: 0	No	X		
012	0990_QC310_230925		25/09/2023 05:18 PM	WATER	ALS: 1 Non ALS: 0	No	X		
013	0990_QC410_230925		25/09/2023 05:18 PM	WATER	ALS: 1 Non ALS: 0	No	X		
014	0990_QC510_230925		25/09/2023 05:19 PM	WATER	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 57498 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 29/9/23 0830

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

...tform Sample Temperature on Receipt: °C

...r comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Water - PFAS WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_QC100_230925		25/09/2023 05:19 PM	WATER	ALS: 2 Non ALS: 0	No	X		
016	0990_QC200_230925	Pls forward to NMI for analysis	25/09/2023 05:20 PM	WATER	ALS: 2 Non ALS: 0	No	X		Forward to NMI for analysis
017	0990_QC300_230925		26/09/2023 08:29 AM	WATER	ALS: 1 Non ALS: 0	No	X		
018	0990_QC400_230925		26/09/2023 08:29 AM	WATER	ALS: 1 Non ALS: 0	No	X		
019	0990_QC500_230925		26/09/2023 08:30 AM	WATER	ALS: 1 Non ALS: 0	No	X		
020	0990_MW231_14.0_230926		26/09/2023 04:08 PM	WATER	ALS: 2 Non ALS: 0	No	X		
021	0990_MW231_22.0_230926		26/09/2023 04:14 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57498 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:
DATE TIME:	DATE TIME:	DATE TIME: [redacted] 29/9/23 0830

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	Water - PFAS WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
022	0990_QC311_230926		26/09/2023 05:04 PM	WATER	ALS: 1 Non ALS: 0	No	X		
023	0990_QC411_230926		26/09/2023 05:05 PM	WATER	ALS: 1 Non ALS: 0	No	X		
024	0990_QC301_230926		26/09/2023 05:21 PM	WATER	ALS: 1 Non ALS: 0	No	X		
025	0990_QC401_230926		26/09/2023 05:22 PM	WATER	ALS: 1 Non ALS: 0	No	X		
026	0990_QC102_230927		27/09/2023 08:04 AM	WATER	ALS: 2 Non ALS: 0	No	X		
027	0990_QC202_230927		27/09/2023 08:05 AM	WATER	ALS: 2 Non ALS: 0	No	X	Please send to NMI Sydney for analysis	
028	0990_QC101_230927		27/09/2023 09:12 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57498 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGE[redacted]

PRIMARY SAMPLER[redacted]

EMAIL REPORTS T[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 29/9/23 0830

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	Water - PFAS WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
029	0990_QC201_230927		27/09/2023 09:14 AM	WATER	ALS: 2 Non ALS: 0	No	X	Please send to NMI Sydney for analysis	
030	0990_QC312_230927		27/09/2023 10:53 AM	WATER	ALS: 1 Non ALS: 0	No	X		
031	0990_QC412_230927		27/09/2023 10:57 AM	WATER	ALS: 1 Non ALS: 0	No	X		
032	0990_QC511_230927		27/09/2023 11:36 AM	WATER	ALS: 1 Non ALS: 0	No	X		
033	0990_QC103_230927		27/09/2023 11:35 AM	WATER	ALS: 2 Non ALS: 0	No	X		
034	0990_QC203_230927		27/09/2023 11:37 AM	WATER	ALS: 2 Non ALS: 0	No	X	Forward to NMI for analysis	
035	0990_QC302_230927		27/09/2023 11:40 AM	WATER	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57498 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 29/9/23 0830

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard Info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

andom Sample Temperature on Receipt: °C

ther comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Water - PFAS WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
036	0990_QC402_230927		27/09/2023 11:41 AM	WATER	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 57498 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 29/9/23 0830

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	0990_MW104_230925	HDPE (no PTFE)	20 mL	00352208043384	Grey	No	
001	0990_MW104_230925	HDPE (no PTFE)	20 mL	00352208043232	Grey	No	
002	0990_MW107_2309	HDPE (no PTFE)	20 mL	00350822023160	Grey	No	
002	0990_MW107_2309	HDPE (no PTFE)	20 mL	00350822023424	Grey	No	
002	0990_MW107_2309	HDPE (no PTFE)	20 mL	00351219036288	Grey	No	
003	0990_MW110_230927	HDPE (no PTFE)	20 mL	00351219036233	Grey	No	
003	0990_MW110_230927	HDPE (no PTFE)	20 mL	00351221009185	Grey	No	
003	0990_MW110_230927	HDPE (no PTFE)	20 mL	00351221009239	Grey	No	
004	0990_MW118_230927	HDPE (no PTFE)	20 mL	00351219036308	Grey	No	
004	0990_MW118_230927	HDPE (no PTFE)	20 mL	00351219036459	Grey	No	
005	0990_MW127_230926	HDPE (no PTFE)	20 mL	00350822023248	Grey	No	
005	0990_MW127_230926	HDPE (no PTFE)	20 mL	00350822023146	Grey	No	
006	0990_MW129_230926	HDPE (no PTFE)	20 mL	00351221009207	Grey	No	
006	0990_MW129_230926	HDPE (no PTFE)	20 mL	00351221009088	Grey	No	
007	0990_MW231_9.0_230926	HDPE (no PTFE)	20 mL	00350822022977	Grey	No	
007	0990_MW231_9.0_230926	HDPE (no PTFE)	20 mL	00350822023437	Grey	No	
008	0990_MW244_230926	HDPE (no PTFE)	20 mL	00351221009157	Grey	No	
008	0990_MW244_230926	HDPE (no PTFE)	20 mL	00351221009386	Grey	No	
009	0990_MW278_230926	HDPE (no PTFE)	20 mL	00351221009345	Grey	No	
009	0990_MW278_230926	HDPE (no PTFE)	20 mL	00351221009383	Grey	No	
010	0990_MW285_230926	HDPE (no PTFE)	20 mL	00351221009276	Grey	No	
010	0990_MW285_230926	HDPE (no PTFE)	20 mL	00351221009190	Grey	No	
011	0990_MW403_230927	HDPE (no PTFE)	20 mL	00350822023321	Grey	No	
011	0990_MW403_230927	HDPE (no PTFE)	20 mL	00350822023025	Grey	No	
012	0990_QC310_230925	HDPE (no PTFE)	20 mL	00350822023451	Grey	No	
013	0990_QC410_230925	HDPE (no PTFE)	20 mL	00350822023427	Grey	No	

CHAIN OF CUSTODY

COC#: 57498 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGER [redacted]
PRIMARY SAMPLER:

EMAIL REPORTS TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	24/9/23 0830

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:

014	0990_QC510_230925	HDPE (no PTFE)	20 mL	00350822023443	Grey	No	
015	0990_QC100_230925	HDPE (no PTFE)	20 mL	00350822023060	Grey	No	
015	0990_QC100_230925	HDPE (no PTFE)	20 mL	00350822023576	Grey	No	
016	0990_QC200_230925	HDPE (no PTFE)	20 mL	00350822023473	Grey	No	
016	0990_QC200_230925	HDPE (no PTFE)	20 mL	00350822023169	Grey	No	
017	0990_QC300_230925	HDPE (no PTFE)	20 mL	00351221009391	Grey	No	
018	0990_QC400_230925	HDPE (no PTFE)	20 mL	00351221009744	Grey	No	
019	0990_QC500_230925	HDPE (no PTFE)	20 mL	00351221009145	Grey	No	
020	0990_MW231_14.0_23092	HDPE (no PTFE)	20 mL	00350822023101	Grey	No	
020	0990_MW231_14.0_23092	HDPE (no PTFE)	20 mL	00350822023351	Grey	No	
021	0990_MW231_22.0_23092	HDPE (no PTFE)	20 mL	00350822023516	Grey	No	
021	0990_MW231_22.0_23092	HDPE (no PTFE)	20 mL	00350822023449	Grey	No	
022	0990_QC311_230926	HDPE (no PTFE)	20 mL	00352205017421	Grey	No	
023	0990_QC411_230926	HDPE (no PTFE)	20 mL	00352205017096	Grey	No	
024	0990_QC301_230926	HDPE (no PTFE)	20 mL	00350822023191	Grey	No	
025	0990_QC401_230926	HDPE (no PTFE)	20 mL	00350822023294	Grey	No	
026	0990_QC102_230927	HDPE (no PTFE)	20 mL	00350822023178	Grey	No	
026	0990_QC102_230927	HDPE (no PTFE)	20 mL	00350822023221	Grey	No	
027	0990_QC202_230927	HDPE (no PTFE)	20 mL	00350822023015	Grey	No	
027	0990_QC202_230927	HDPE (no PTFE)	20 mL	00350822023149	Grey	No	
028	0990_QC101_230927	HDPE (no PTFE)	20 mL	00350822023479	Grey	No	
028	0990_QC101_230927	HDPE (no PTFE)	20 mL	00350822023383	Grey	No	
029	0990_QC201_230927	HDPE (no PTFE)	20 mL	00350822023480	Grey	No	
029	0990_QC201_230927	HDPE (no PTFE)	20 mL	00350822023355	Grey	No	
030	0990_QC312_230927	HDPE (no PTFE)	20 mL	00352205017196	Grey	No	
031	0990_QC412_230927	HDPE (no PTFE)	20 mL	00352205017426	Grey	No	
032	0990_QC511_230927	HDPE (no PTFE)	20 mL	00351219036264	Grey	No	

CHAIN OF CUSTODY

COC#: **57498** *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 OMP/PMAP

ORDER NO: 60612561/3.1

PROJECT MANAGE[redacted]

PRIMARY SAMPLE[redacted]

EMAIL REPORTS T[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 29/9/23 0830

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:			

033	0990_QC103_230927	HDPE (no PTFE)	20 mL	00350822023028	Grey	No	
033	0990_QC103_230927	HDPE (no PTFE)	20 mL	00350822023461	Grey	No	
034	0990_QC203_230927	HDPE (no PTFE)	20 mL	00350822023535	Grey	No	
034	0990_QC203_230927	HDPE (no PTFE)	20 mL	00350822023113	Grey	No	
035	0990_QC302_230927	HDPE (no PTFE)	20 mL	00350822023370	Grey	No	
036	0990_QC402_230927	HDPE (no PTFE)	20 mL	00350822023444	Grey	No	

Total Bottle Count: ALS: 59, Non ALS: 0

CHAIN OF CUSTODY

COC#: 57794 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 29/9/23 0830

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 PFASOMP

ORDER NO: 60612561/3.1

PROJECT MANAG[redacted]

PRIMARY SAMPLE[redacted]

EMAIL REPORTS T[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	Water - PFAS WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_MW135_230925		25/09/2023 01:55 PM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0990_MW732_230925		25/09/2023 01:14 PM	WATER	ALS: 2 Non ALS: 0	No	X		
003	0990_MW137_2309		25/09/2023 01:15 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0990_OTH116_230925		25/09/2023 11:33 AM	WATER	ALS: 2 Non ALS: 0	No	X		
005	0990_MW140_230922		25/09/2023 12:49 PM	WATER	ALS: 2 Non ALS: 0	No	X		
006	0990_MW142_230925		25/09/2023 12:29 PM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_MW144_230922		25/09/2023 11:57 AM	WATER	ALS: 2 Non ALS: 0	No	X		

Environmental Division Sydney

Work Order Reference

ES2333200

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

COC#: 57794 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 PFASOMP

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 29/9/23 0830

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	Water - PFAS WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_MW400_230925		25/09/2023 12:27 PM	WATER	ALS: 2 Non ALS: 0	No	X		
009	0990_OTH111_230926		26/09/2023 02:54 PM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_OTH112_230926		26/09/2023 03:15 PM	WATER	ALS: 2 Non ALS: 0	No	X		

AECOM

AECOM Australia Pty Ltd

0990 PAGE 1 of 6 Chain of Custody

[redacted]

[redacted]

Sampled By: [redacted]

Project Name: NT_0990_PFASOMP_23

AECOM Project #: 60612561/3.1

Purchase Order No:

Specifications: Please report in ESdat format RE-FREEZE BIOTA SAMPLES

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)	
2. Fast TAT Guarantee Required?	
3. Is dry sediment layer present in wetes to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.17	
5. Special storage requirements? (details: RE-FREEZE BIOTA SAMPLES)	Y
6. Report Format: ESdat	7. Project Manager:

Lab. ID	Sample ID	Sampling Date	Matrix: tissue	Matrix: water	Matrix:	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: frozen	Container (No. & type)	Analysis Request	Notes
1	0990_BIOAFA441_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
2	0990_BIOAFA442_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
3	0990_BIOAFA443_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
4	0990_BIOAFA444_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
5	0990_BIOAFA445_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
6	0990_BIOAFA446_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
7	0990_BIOAFA447_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
8	0990_BIOAFA448_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
9	0990_BIOAFA449_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
10	0990_BIOAFA450_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
11	0990_BIOAFA451_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
12	0990_BIOAFA452_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
13	0990_BIOAFA453_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold
14	0990_BIOAFA454_231023	23 Oct 2022	X						X	Snap bag	X	re-freeze when on hold

Environmental Division Sydney

Work Order Reference

ES2337465

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 & invoice: AP_CustomerServiceANZ@aecom.com

Relinquished by: Ian Dixon Signed: Date: 27/10/2023

Received by: Signed: Date:

Relinquished by: Date:

Received by: Date:

[redacted]

COC emailed to ALS DARWIN (excel & PDF)

Analysis instructions received 02/11/23 15:19

[redacted]

AECOM

 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format	RE-FREEZE BIOTA SAMPLES	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)		
2. Field 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: RE-FREEZE BIOTA SAMPLES)		Y
6. Report Format: ESdat	7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: biota	Matrix: water	Matrix:	Preservation: Wet	Preservation: acid	Preservation: ice	Preservation: frozen	Container (No. & type)	PCLP	Analysis Request	Notes
15	0990_BIOAFA455_231023	23 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
16	0990_BIOAFA456_231023	23 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
17	0990_BIOAFA457_231023	23 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
18	0990_BIOAFA458_231023	23 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
19	0990_BIOAFA459_231023	23 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
20	0990_BIOAFA460_231023	23 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
21	0990_BIOAFA461_231023	23 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
22	0990_BIOAFA462_231023	23 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
23	0990_BIOAFA463_231024	24 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
24	0990_BIOAFA464_231024	24 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
25	0990_BIOAFA465_231024	24 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
26	0990_BIOAFA466_231024	24 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
27	0990_BIOAFA467_231024	24 Oct 2022	X						X	Snap bag	X		re-freeze when on hold
28	0990_BIOAFA468_231024	24 Oct 2022	X						X	Snap bag	X		re-freeze when on hold

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: AP_CustomerServiceANZ@aecom.com

Lab Report No: Lab ID:

Relinquished by: Ian Dixon Signed: Date: 27/10/2023 Relinquished by: [redacted] Date:

Received by: Signed: Date: Received by: Date: 31/10 (11)

AECOM

 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format	RE-FREEZE BIOTA SAMPLES	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: RE-FREEZE BIOTA SAMPLES)		Y
6. Report Format: ESdat	7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: Water	Matrix: Sediment	Matrix: Biota	Preservation: Other	Preservation: Acid	Preservation: Ice	Preservation: Frozen	Containers (No. & type)	Analysis Request: VOCs	Notes
29	0990_BIOAFA469_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
30	0990_BIOAFA470_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
31	0990_BIOAFA471_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
32	0990_BIOAFA472_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
33	0990_BIOAFA473_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
34	0990_BIOAFA474_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
35	0990_BIOAFA475_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
36	0990_BIOAFA476_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
37	0990_BIOAFA477_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
38	0990_BIOAFA478_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
39	0990_BIOAFA479_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
40	0990_BIOAFA480_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
41	0990_BIOAFA481_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold
42	0990_BIOAFA482_231024	24 Oct 2023	X						X	Snap bag	x	re-freeze when on hold

Comments: Please send ESdat files to DERP.Jobreports@esdat.com.au and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & Invoice: AP_CustomerServiceANZ@aecom.com

Lab Report No.:

Relinquished by: Ian Dixon Signed: Date: 27/10/2023

Received by: Signed: Date:

Relinquished by: [redacted] Date:

Received by: [redacted] Date: 31/10 11:1

AECOM

 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format	RE-FREEZE BIOTA SAMPLES	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: RE-FREEZE BIOTA SAMPLES)		Y
6. Report Format: ESdat	7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: Water	Matrix: Solid	Preservation: Filtered	Preservation: Acid	Preservation: Ice	Preservation: Frozen	Container (No. & type)	Analysis Request: <LOR	Notes
43	0990_BIOAFA483_231024	24 Oct 2023	X					X	Snap bag	x	re-freeze when on hold
44	0990_BIOAFA484_231024	24 Oct 2023	X					X	Snap bag	x	re-freeze when on hold

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: AP_CustomerServiceANZ@aecom.com

Relinquished by: Ian Dixon Signed: Date: 27/10/2023

Received by: Signed: Date:

Relinquished by: [redacted] Date:

Received by: [redacted] Date: 31/10/2023

AECOM

 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format	RE-FREEZE BIOTA SAMPLES	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 5.1.17		
5. Special storage requirements? (details: RE-FREEZE BIOTA SAMPLES)		Y
6. Report Format: ESdat	7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: biota	water		Preservation: filtered	acid	ice	frozen	Container (No. & type)	S/D/C	Analysis Request	Notes
45	0990_QC147_231024	24 Oct 2023		X				X		Bottle	X		
46	0990_QC148_231023	23 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
47	0990_QC149_231023	23 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
48	0990_QC150_231023	23 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
49	0990_QC151_231023	23 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
50	0990_QC152_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
51	0990_QC153_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
52	0990_QC154_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
53	0990_QC155_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
54	0990_QC201_231024	24 Oct 2023		X				X		Bottle	X		Water - FILS FWD TO NMI
55	0990_QC202_231023	23 Oct 2023	X						X	Snap bag	X		Frozen Biota - FILS FWD TO NMI
56	0990_QC203_231023	23 Oct 2023	X						X	Snap bag	X		Frozen Biota - FILS FWD TO NMI
57	0990_QC204_231024	24 Oct 2023	X						X	Snap bag	X		Frozen Biota - FILS FWD TO NMI
58	0990_QC205_231024	24 Oct 2023	X						X	Snap bag	X		Frozen Biota - FILS FWD TO NMI

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: AP_CustomerServiceANZ@aecom.com	Lab Report No.	Lab ID
Relinquished by:	Ian Dixon	Signed:	Date: 27/10/2023	Relinquished by:	Date:
Received by:		Signed:	Date:	Received by: [redacted]	Date: 31/10/2023

AECOM

0990_PAGE_6_of_6 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format	RE-FREEZE BIOTA SAMPLES	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr 5 days)		
2. Field 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 5.1.17		
5. Special storage requirements? (details: RE-FREEZE BIOTA SAMPLES)		Y
6. Report Format: ESdat	7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: Water	Matrix: Soil	Preservation: Cool	Preservation: Ice	Container (No. & type)	Analysis Request: TCLP
59	0990_QC308_231025	25 Oct 2023	X			X	Bottle	X
60	0990_QC507_231027	27 Oct 2023	X			X	Bottle	X
61	0990_QC508_231025	25 Oct 2023	X			X	Bottle	X
62	0990_SW151_231024	24 Oct 2023	X			X	Bottle	X
								X
								X
								X
								X
								X
								X
								X
								X
								X
								X
								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: AP_CustomerServiceANZ@aecom.com

Relinquished by: Ian Dixon Signed: Date: 27/10/2023

Received by: Signed: Date:

Relinquished by: [redacted] Date:

Received by: [redacted] Date: 31/10 1011

CHAIN OF CUSTODY

COC#: 57794 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 29/9/23 0830

CLIENT: AECOMAU - AECOM AUSTRALIA PTY LTD

PROJECT: NT_0990_PFASOMP_23

SITE: 0990 PFASOMP

ORDER NO: 60612561/3.1

PROJECT MANAGER [redacted]

PRIMARY SAMPLER

EMAIL REPORTS TO

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0990_MW135_230925	HDPE (no PTFE)	20 mL	00350822023104	Grey	No	
001	0990_MW135_230925	HDPE (no PTFE)	20 mL	00350822023241	Grey	No	
002	0990_MW732_230925	HDPE (no PTFE)	20 mL	00350822023397	Grey	No	
002	0990_MW732_230925	HDPE (no PTFE)	20 mL	00350822023301	Grey	No	
003	0990_MW137_2309	HDPE (no PTFE)	20 mL	00351221009252	Grey	No	
003	0990_MW137_2309	HDPE (no PTFE)	20 mL	00351221009071	Grey	No	
004	0990_OTH116_230925	HDPE (no PTFE)	20 mL	00350822023563	Grey	No	
004	0990_OTH116_230925	HDPE (no PTFE)	20 mL	00350822022979	Grey	No	
005	0990_MW140_230922	HDPE (no PTFE)	20 mL	00351221009178	Grey	No	
005	0990_MW140_230922	HDPE (no PTFE)	20 mL	00351221009302	Grey	No	
006	0990_MW142_230925	HDPE (no PTFE)	20 mL	00351221009297	Grey	No	
006	0990_MW142_230925	HDPE (no PTFE)	20 mL	00351221009330	Grey	No	
007	0990_MW144_230922	HDPE (no PTFE)	20 mL	00351221009340	Grey	No	
007	0990_MW144_230922	HDPE (no PTFE)	20 mL	00351221009155	Grey	No	
008	0990_MW400_230925	HDPE (no PTFE)	20 mL	00350822023114	Grey	No	
008	0990_MW400_230925	HDPE (no PTFE)	20 mL	00350822023174	Grey	No	
009	0990_OTH111_230926	HDPE (no PTFE)	20 mL	00350822022972	Grey	No	
009	0990_OTH111_230926	HDPE (no PTFE)	20 mL	00350822023009	Grey	No	
010	0990_OTH112_230926	HDPE (no PTFE)	20 mL	00351221009228	Grey	No	
010	0990_OTH112_230926	HDPE (no PTFE)	20 mL	00351221009004	Grey	No	

Total Bottle Count: ALS: 20, Non ALS: 0

Jack Clifton

From: [redacted]
Sent:
To:
Subject:

Hi [redacted]

Can you please arrange to have analysis added as pe[redacted]email below?
I'll bring the COC's down shortly!
Thanks!

Kind regards,

[redacted]

[redacted]

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

H[redacted]

Could we please schedule all samples for PFAS and forward any QC samples frozen to NMI for analysis?

Thanks,

[redacted]

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: ☐ Standard TAT (List due date):
OFFICE: Darwin	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):
PROJECT: NT_0990_PFASOMP_23	ALS QUOTE NO.: SY/139/V3
ORDER NUMBER: [redacted]	

COC SEQUENCE NUMBER (Circle): COC: 1 2 3 4 5 6 7; SF: [redacted] 5 6 7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice blocks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt		°C	
Other comment:			

[redacted]

RELINQUISHED BY: [redacted]

DATE/TIME: 27/7/23 10:30

RECEIVED BY: [redacted]

RELINQUISHED BY: ALS

DATE/TIME:

RECEIVED BY:

DATE/TIME: 31/7/23 1230

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: ESKY

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	PFAS - EP231X								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	0990_OTH008_230724	24-Jul-23	W	2 x PFAS	2	X								
2	0990_SW108_230724	24-Jul-23	W	2 x PFAS	2	X								Extra vol lab QC
3	0990_SW103_230724 (SW103)	24-Jul-23	W	2 x PFAS	2	X								Extra volume for lab QC
4	0990_QC100_230724	24-Jul-23	W	2 x PFAS	2	X								Extra Vol Lab QC
5	0990_QC200_230724	24-Jul-23	W	2 x PFAS	2	X								
6	0990_QC300_230724	24-Jul-23	W	2 x PFAS	2	X								PLS FORWARD TO NMI FOR ANALYSIS
7	0990_QC400_230724	24-Jul-23	W	2 x PFAS	2	X								
8	0990_QC500_230724	24-Jul-23	W	2 x PFAS	2	X								
				TOTAL	16									

LAB QC ORIG DARWIN

Sa/Sun / Overnight Courier (circle one)
Lab/ Analysis: NMI
Organised By / Date:
Relinquished By / Date:
Courier / Courier: QC FWD
WO No: ES2325102
Attach By: COC / Internal Sheet

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; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Environmental Division
Sydney
Work Order Reference
ES2325102

Telephone : +61-2-8784 8555

[redacted]

[redacted]

Hi All,

We have received two batches worth of biota samples that are currently on hold.

Could you please send through an updated COC at your earliest convenience? We will keep these samples on hold until we receive further notice.

Cheers.

Kind regards,

[redacted]

AECOM

0990 PAGE 1 of 6 Chain of Custody

[redacted]

Sampled By [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format RE-FREEZE BIOTA SAMPLES

	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 5.1.17	
5. Special storage requirements? (details: RE-FREEZE BIOTA SAMPLES)	Y

6. Report Format: ESdat 7. Project Manager:

Analysis Request

Subcon / Forwarded to / Split WO:
Lab / Analysis: NMI - 0990_QL201
Organised By / Date: QL202
Relinquished By / Date: QL203
Courier / Courier: QL204
WO No: QL205
Attached By PO / Internal Sheet: Notes

Lab. ID	Sample ID	Sampling Date	Matrix: Biota	Matrix: water	Matrix:	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: frozen	Container (No. & type)	
1	0990_BIOAFA441_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
2	0990_BIOAFA442_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
3	0990_BIOAFA443_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
4	0990_BIOAFA444_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
5	0990_BIOAFA445_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
6	0990_BIOAFA446_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
7	0990_BIOAFA447_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
8	0990_BIOAFA448_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
9	0990_BIOAFA449_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
10	0990_BIOAFA450_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
11	0990_BIOAFA451_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
12	0990_BIOAFA452_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
13	0990_BIOAFA453_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold
14	0990_BIOAFA454_231023	23 Oct 2022	X						X	Snap bag	re-freeze when on hold

Environmental Division
Sydney
Work Order Reference
ES2337465

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 & Invoice: AP_CustomerServiceANZ@aecom.com

Relinquished by:	Ian Dixon	Signed:	Date: 27/10/2023	Relinquished by:	Date:
Received by:		Signed:	Date:	Received by:	Date:

[redacted]

COC emailed to ALS DARWIN (excel 2 PDF)

Analysis instructions received 02/11/23 1549 - JOb

AECOM

0990_PAGE_2_of_6 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format	RE-FREEZE BIOTA SAMPLES	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: RE-FREEZE BIOTA SAMPLES)		Y
6. Report Format: ESdat	7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: tissue	Matrix: water	Matrix:	Preservation: Ethanol	Preservation: acid	Preservation: Ice	Preservation: frozen	Container (No. & type)	Analysis Request: HOLD	Notes
15	0990_BIOAFA455_231023	23 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
16	0990_BIOAFA456_231023	23 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
17	0990_BIOAFA457_231023	23 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
18	0990_BIOAFA458_231023	23 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
19	0990_BIOAFA459_231023	23 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
20	0990_BIOAFA460_231023	23 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
21	0990_BIOAFA461_231023	23 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
22	0990_BIOAFA462_231023	23 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
23	0990_BIOAFA463_231024	24 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
24	0990_BIOAFA464_231024	24 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
25	0990_BIOAFA465_231024	24 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
26	0990_BIOAFA466_231024	24 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
27	0990_BIOAFA467_231024	24 Oct 2022	X						X	Snap bag	x	re-freeze when on hold
28	0990_BIOAFA468_231024	24 Oct 2022	X						X	Snap bag	x	re-freeze when on hold

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: AP_CustomerServiceANZ@aecom.com

Lab Batch No. SDG ID

Relinquished by:	Ian Dixon	Signed:	Date: 27/10/2023	Relinquished by:		Date:
Received by:		Signed:	Date:	Received by:	[redacted]	Date: 31/10/2023

AECOM

 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format	RE-FREEZE BIOTA SAMPLES	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 8.1.19		
5. Special storage requirements? (details: RE-FREEZE BIOTA SAMPLES)		Y
6. Report Format: ESdat	7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: Water	Matrix: Soil	Matrix:	Preservation: Effluent	Preservation: Acid	Preservation: Ice	Preservation: Frozen	Container (Bottle & type)	PFAS	Analysis Request	Notes
29	0990_BIOAFA469_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
30	0990_BIOAFA470_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
31	0990_BIOAFA471_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
32	0990_BIOAFA472_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
33	0990_BIOAFA473_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
34	0990_BIOAFA474_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
35	0990_BIOAFA475_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
36	0990_BIOAFA476_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
37	0990_BIOAFA477_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
38	0990_BIOAFA478_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
39	0990_BIOAFA479_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
40	0990_BIOAFA480_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
41	0990_BIOAFA481_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
42	0990_BIOAFA482_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold

Comments: Please send ESdat files to DERPJabreports@esdat.com.au and ensure that the files use the PROJECT NAME

Temp. received: °C

Report & Invoice: AP_CustomerServiceANZ@aecom.com

Lab Report No. Poly ID

Relinquished by:	Ian Dixon	Signed:	Date: 27/10/2023	Relinquished by:	Date:
Received by:		Signed:	Date:	Received by: [redacted]	Date: 31/10/23

AECOM

0990_PAGE_4_of_6 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format	RE-FREEZE BIOTA SAMPLES	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: RE-FREEZE BIOTA SAMPLES)		Y
6. Report Format: ESdat	7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: Biota	Matrix: water	Matrix:	Preservation: filtered	Preservation: acid	Preservation: ice	Preservation: frozen	Container (No. & type)	HOLD	Analysis Request	Notes
43	0990_BIOAFA483_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold
44	0990_BIOAFA484_231024	24 Oct 2023	X						X	Snap bag	X		re-freeze when on hold

Comments: Please send ESdat files to DERPJabreports@esdat.com.au and ensure that the files use the PROJECT NAME Temp. received: °C Report & invoice: AP_CustomerServiceANZ@aecom.com Lab Report No. Entry ID

Relinquished by: Ian Dixon Signed: Date: 27/10/2023 Relinquished by: [redacted] Date:

Received by: Signed: Date: Received by: [redacted] Date: 31/10/2023

AECOM

0990_PAGE_5_of_6 Chain of Custody

[redacted]

Sampled By: [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format RE-FREEZE BIOTA SAMPLES

	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: RE-FREEZE BIOTA SAMPLES)	Y
6. Report Format: ESdat 7. Project Manager:	

Lab. ID	Sample ID	Sampling Date	Matrix: tissue	Matrix: water	Matrix:	Preservation: filtered	Preservation: acid	Preservation: ice	Container: bottle	Container: snap bag	Analysis Request: HOLD	Notes
45	0990_QC147_231024	24 Oct 2023		X				X		Bottle	X	
46	0990_QC148_231023	23 Oct 2023	X						X	Snap bag	X	re-freeze when on hold
47	0990_QC149_231023	23 Oct 2023	X						X	Snap bag	X	re-freeze when on hold
48	0990_QC150_231023	23 Oct 2023	X						X	Snap bag	X	re-freeze when on hold
49	0990_QC151_231023	23 Oct 2023	X						X	Snap bag	X	re-freeze when on hold
50	0990_QC152_231024	24 Oct 2023	X						X	Snap bag	X	re-freeze when on hold
51	0990_QC153_231024	24 Oct 2023	X						X	Snap bag	X	re-freeze when on hold
52	0990_QC154_231024	24 Oct 2023	X						X	Snap bag	X	re-freeze when on hold
53	0990_QC155_231024	24 Oct 2023	X						X	Snap bag	X	re-freeze when on hold
~~54~~	0990_QC201_231024	24 Oct 2023		X				X		Bottle	X	Water - PLS FWD TO ME
~~55~~	0990_QC202_231023	23 Oct 2023	X						X	Snap bag	X	Frozen biota - PLS FWD TO ME
~~56~~	0990_QC203_231023	23 Oct 2023	X						X	Snap bag	X	Frozen biota - PLS FWD TO ME
~~57~~	0990_QC204_231024	24 Oct 2023	X						X	Snap bag	X	Frozen biota - PLS FWD TO ME
~~58~~	0990_QC205_231024	24 Oct 2023	X						X	Snap bag	X	Frozen biota - PLS FWD TO ME

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: AP_CustomerServiceANZ@aecom.com

Lab Report No. Bottle ID

Relinquished by: Ian Dixon Signed: Date: 27/10/2023

Received by: Signed: Date:

Relinquished by: [redacted] Date:

Received by: [redacted] Date: 31/10/2023

AECOM

0990 PAGE 6 of 6 Chain of Custody

[redacted]

Sampled By [redacted] Project Name: NT_0990_PFASOMP_23 AECOM Project #: 60612561/3.1 Purchase Order No:

Specifications: Please report in ESdat format RE-FREEZE BIOTA SAMPLES

	Yes (tick)
1. Urgent TAT req'd? (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 s.1.17	
5. Special storage requirements? (details: RE-FREEZE BIOTA SAMPLES)	Y

6. Report Format: ESdat 7. Project Manager:

Lab. ID	Sample ID	Sampling Date	Matrix: bottle	Matrix: water	Matrix:	Preservation: Nitric	Preservation: acid	Preservation: Ice	Preservation: frozen	Container (No. & type)	Analysis Request: ECD	Notes
54 ~~59~~	0990_QC308_231025	25 Oct 2023		X				X		Bottle	x	
55 60	0990_QC507_231027	27 Oct 2023		X				X		Bottle	x	
56 61	0990_QC508_231025	25 Oct 2023		X				X		Bottle	x	
57 62	0990_SW151_231024	24 Oct 2023		X				X		Bottle	x	
											x	
											x	
											x	
											x	
											x	
											x	
											x	
											x	
											x	
											x	
											x	

Comments: Please send ESdat files to DERP.labreports@esdat.com.au and assure that the files use the PROJECT NAME

Temp. received: °C

Report & Invoice: AP_CustomerServiceANZ@aecom.com

Relinquished by:	Ian Dixon	Signed:	Date: 27/10/2023	Relinquished by: [redacted]	Date:
Received by:		Signed:	Date:	Received by:	Date: 31/10/23

Appendix F

Laboratory Reports

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2325102**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: NT_0990_PFASOMP_23	Page	: 1 of 2
Order number	: 60612561 / 3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 31-Jul-2023 12:30	Issue Date	: 01-Aug-2023
Client Requested Due Date	: 04-Aug-2023	Scheduled Reporting Date	: **04-Aug-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 18.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

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.**
- **QC Forward analysis will be conducted by NMI.**
- 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)
ES2325102-001	24-Jul-2023 00:00	0990_OTH008_230724	✓
ES2325102-002	24-Jul-2023 00:00	0990_SW108_230724	✓
ES2325102-003	24-Jul-2023 00:00	0990_SW153_230724	✓
ES2325102-004	24-Jul-2023 00:00	0990_QC100_230724	✓
ES2325102-006	24-Jul-2023 00:00	0990_QC300_230724	✓
ES2325102-007	24-Jul-2023 00:00	0990_QC400_230724	✓
ES2325102-008	24-Jul-2023 00:00	0990_QC500_230724	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

QUALITY CONTROL REPORT

Work Order	: **ES2325102**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: GPO BOX 3175 DARWIN NT, AUSTRALIA 0801	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Jul-2023
Order number	: 60612561 / 3.1	Date Analysis Commenced	: 01-Aug-2023
C-O-C number	: ----	Issue Date	: 04-Aug-2023
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 7		
No. of samples analysed	: 7		

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]		

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: 5207312)									
ES2325102-001	0990_OTH008_230724	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.03	0.03	0.0	No Limit
		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	<0.02	<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
ES2325103-025	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: 5207312)									
ES2325102-001	0990_OTH008_230724	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 sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5207312) - continued									
ES2325103-025	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: 5207312)									
ES2325102-001	0990_OTH008_230724	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
ES2325103-025	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: 5207312)									
ES2325102-001	0990_OTH008_230724	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: 5207312) - continued									
ES2325102-001	0990_OTH008_230724	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
ES2325103-025	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: 5207312)									
ES2325102-001	0990_OTH008_230724	EP231X: Sum of PFAS	----	0.01	µg/L	0.07	0.07	0.0	No Limit
ES2325103-025	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5207312)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	84.1	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	95.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	96.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	97.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	97.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5207312)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	96.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	93.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	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	98.9	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	97.7	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.5	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	115	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5207312)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	97.3	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	116	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	90.1	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	99.8	57.6	145
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	91.1	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5207312)								

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: 5207312) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	105	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	105	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	114	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5207312)							
ES2325102-002	0990_SW108_230724	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	73.1	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	97.0	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	96.3	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	117	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	94.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	86.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5207312)							
ES2325102-002	0990_SW108_230724	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	83.8	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.6	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.1	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.7	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	104	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	89.6	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	93.9	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	95.4	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	87.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	113	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5207312)							
ES2325102-002	0990_SW108_230724	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.1	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	102	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	85.1	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.0	66.0	145

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: 5207312) - continued							
ES2325102-002	0990_SW108_230724	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	95.2	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	81.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5207312)							
ES2325102-002	0990_SW108_230724	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	85.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	103	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	100	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	95.5	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2325102**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Jul-2023
Site	: ----	Issue Date	: 04-Aug-2023
Sampler	: [redacted]	No. of samples received	: 7
Order number	: 60612561 / 3.1	No. of samples analysed	: 7

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)							
0990_OTH008_230724, 0990_SW108_230724, 0990_SW153_230724, 0990_QC100_230724, 0990_QC300_230724, 0990_QC400_230724, 0990_QC500_230724	**24-Jul-2023**	**02-Aug-2023**	20-Jan-2024	✓	**04-Aug-2023**	20-Jan-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0990_OTH008_230724, 0990_SW108_230724, 0990_SW153_230724, 0990_QC100_230724, 0990_QC300_230724, 0990_QC400_230724, 0990_QC500_230724	**24-Jul-2023**	**02-Aug-2023**	20-Jan-2024	✓	**04-Aug-2023**	20-Jan-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0990_OTH008_230724, 0990_SW108_230724, 0990_SW153_230724, 0990_QC100_230724, 0990_QC300_230724, 0990_QC400_230724, 0990_QC500_230724	**24-Jul-2023**	**02-Aug-2023**	20-Jan-2024	✓	**04-Aug-2023**	20-Jan-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0990_OTH008_230724, 0990_SW108_230724, 0990_SW153_230724, 0990_QC100_230724, 0990_QC300_230724, 0990_QC400_230724, 0990_QC500_230724	**24-Jul-2023**	**02-Aug-2023**	20-Jan-2024	✓	**04-Aug-2023**	20-Jan-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0990_OTH008_230724, 0990_SW108_230724, 0990_SW153_230724, 0990_QC100_230724, 0990_QC300_230724, 0990_QC400_230724, 0990_QC500_230724	**24-Jul-2023**	**02-Aug-2023**	20-Jan-2024	✓	**04-Aug-2023**	20-Jan-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2325102**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Jul-2023 12:30
Order number	: 60612561 / 3.1	Date Analysis Commenced	: 01-Aug-2023
C-O-C number	: ----	Issue Date	: 04-Aug-2023 15:38
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 7		
No. of samples analysed	: 7		

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]		

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)				Sample ID	0990_OTH008_230724	0990_SW108_230724	0990_SW153_230724	0990_QC100_230724	0990_QC300_230724
				Sampling date / time	24-Jul-2023 00:00	24-Jul-2023 00:00	24-Jul-2023 00:00	24-Jul-2023 00:00	24-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325102-001	ES2325102-002	ES2325102-003	ES2325102-004	ES2325102-006
					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		**0.03**	**0.06**	**0.01**	**0.06**	<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		**0.04**	**0.10**	**0.02**	**0.10**	<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	0990_OTH008_230724	0990_SW108_230724	0990_SW153_230724	0990_QC100_230724	0990_QC300_230724
				Sampling date / time	24-Jul-2023 00:00	24-Jul-2023 00:00	24-Jul-2023 00:00	24-Jul-2023 00:00	24-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325102-001	ES2325102-002	ES2325102-003	ES2325102-004	ES2325102-006
					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		**0.07**	**0.16**	**0.03**	**0.16**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.07**	**0.16**	**0.03**	**0.16**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.07**	**0.16**	**0.03**	**0.16**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.9**	**106**	**104**	**103**	**104**
13C8-PFOA	----	0.02	%		**102**	**102**	**102**	**104**	**103**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC400_230724	0990_QC500_230724	----	----	----
				Sampling date / time	24-Jul-2023 00:00	24-Jul-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2325102-007	ES2325102-008	--------	--------	--------
					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	0990_QC400_230724	0990_QC500_230724	----	----	----
				Sampling date / time	24-Jul-2023 00:00	24-Jul-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2325102-007	ES2325102-008	--------	--------	--------
					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**	**99.5**	----	----	----
13C8-PFOA	----	0.02	%		**103**	**102**	----	----	----

Surrogate Control Limits

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2325103**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASOMP_23	Page	: 1 of 3
Order number	: 60612561	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	[redacted]		

Dates

Date Samples Received	: 31-Jul-2023 12:30	Issue Date	: 01-Aug-2023
Client Requested Due Date	: 04-Aug-2023	Scheduled Reporting Date	: **04-Aug-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 23.7'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 30 / 30

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.**
- **QC Forward analysis will be conducted by NMI.**
- 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)
ES2325103-001	25-Jul-2023 00:00	0990_POT134_230725	✓
ES2325103-002	25-Jul-2023 00:00	0990_POT135_230725	✓
ES2325103-003	25-Jul-2023 00:00	0990_POT136_230725	✓
ES2325103-004	25-Jul-2023 00:00	0990_POT137_230725	✓
ES2325103-005	25-Jul-2023 00:00	0990_POT138_230725	✓
ES2325103-006	25-Jul-2023 00:00	0990_POT139_230725	✓
ES2325103-007	25-Jul-2023 00:00	0990_POT140_230725	✓
ES2325103-008	25-Jul-2023 00:00	0990_POT141_230725	✓
ES2325103-009	25-Jul-2023 00:00	0990_POT142_230725	✓
ES2325103-010	25-Jul-2023 00:00	0990_POT143_230725	✓
ES2325103-011	25-Jul-2023 00:00	0990_POT144_230725	✓
ES2325103-012	25-Jul-2023 00:00	0990_POT145_230725	✓
ES2325103-013	26-Jul-2023 00:00	0990_POT149_230726	✓
ES2325103-014	26-Jul-2023 00:00	0990_POT150_230726	✓
ES2325103-015	26-Jul-2023 00:00	0990_POT151_230726	✓
ES2325103-016	26-Jul-2023 00:00	0990_POT152_230726	✓
ES2325103-017	26-Jul-2023 00:00	0990_POT153_230726	✓
ES2325103-018	26-Jul-2023 00:00	0990_POT154_230726	✓
ES2325103-019	26-Jul-2023 00:00	0990_POT155_230726	✓
ES2325103-020	26-Jul-2023 00:00	0990_POT156_230726	✓
ES2325103-022	26-Jul-2023 00:00	0990_QC103_230726	✓
ES2325103-024	25-Jul-2023 00:00	0990_POT146_230725	✓
ES2325103-025	25-Jul-2023 00:00	0990_POT147_230725	✓
ES2325103-026	25-Jul-2023 00:00	0990_POT148_230725	✓
ES2325103-027	25-Jul-2023 00:00	0990_QC100_230725	✓
ES2325103-029	25-Jul-2023 00:00	0990_QC101_230725	✓
ES2325103-031	25-Jul-2023 00:00	0990_QC300_230725	✓
ES2325103-032	25-Jul-2023 00:00	0990_QC400_230725	✓
ES2325103-033	25-Jul-2023 00:00	0990_QC500_230725	✓
ES2325103-034	26-Jul-2023 00:00	0990_POT120_230726	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

QUALITY CONTROL REPORT

Work Order	: **ES2325103**	Page	: 1 of 11
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Jul-2023
Order number	: 60612561	Date Analysis Commenced	: 01-Aug-2023
C-O-C number	: ----	Issue Date	: 04-Aug-2023
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 30		
No. of samples analysed	: 30		

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]		

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: 5207310)									
ES2325103-010	0990_POT143_230725	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
ES2325103-014	0990_POT150_230726	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5207312)									
ES2325102-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.03	0.03	0.0	No Limit
		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	<0.02	<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
ES2325103-025	0990_POT147_230725	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5207312) - continued									
ES2325103-025	0990_POT147_230725	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: 5207310)									
ES2325103-010	0990_POT143_230725	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
ES2325103-014	0990_POT150_230726	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: 5207312)									
ES2325102-001	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	<0.02	<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
ES2325103-025	0990_POT147_230725	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5207312) - continued									
ES2325103-025	0990_POT147_230725	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: 5207310)									
ES2325103-010	0990_POT143_230725	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
ES2325103-014	0990_POT150_230726	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: 5207312)									
ES2325102-001	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: 5207312) - continued									
ES2325102-001	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
ES2325103-025	0990_POT147_230725	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: 5207310)									
ES2325103-010	0990_POT143_230725	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
ES2325103-014	0990_POT150_230726	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: 5207312)									
ES2325102-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5207312) - continued									
ES2325102-001	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2325103-025	0990_POT147_230725	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: 5207310)									
ES2325103-010	0990_POT143_230725	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
ES2325103-014	0990_POT150_230726	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5207312)									
ES2325102-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.07	0.07	0.0	No Limit
ES2325103-025	0990_POT147_230725	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5207310)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	88.5	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	92.5	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	111	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	97.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	93.6	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5207312)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	84.1	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	95.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	96.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	97.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	97.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5207310)								
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	103	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.5	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	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	98.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	92.3	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	118	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5207312)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	96.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	93.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130

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: 5207312) - continued								
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	102	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	98.9	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	97.7	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.5	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	115	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5207310)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	98.3	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	90.2	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	113	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.5	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	109	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	80.8	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5207312)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	97.3	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	116	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	90.1	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	99.8	57.6	145
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	91.1	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5207310)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	111	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	100	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	93.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	85.5	71.4	144

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: 5207312)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	105	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	105	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	114	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5207310)							
ES2325103-010	0990_POT143_230725	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	90.2	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	89.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	95.1	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	113	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	101	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	93.4	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5207312)							
ES2325102-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	73.1	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	97.0	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	96.3	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	117	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	94.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	86.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5207310)							
ES2325103-010	0990_POT143_230725	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	95.3	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	104	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	97.6	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	101	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	107	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	99.9	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	104	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	97.1	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	117	71.0	132

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: 5207312)							
ES2325102-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	83.8	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.6	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.1	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.7	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	104	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	89.6	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	93.9	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	95.4	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	87.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	113	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5207310)							
ES2325103-010	0990_POT143_230725	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	97.9	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	109	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	98.3	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	110	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.3	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	101	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	83.1	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5207312)							
ES2325102-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.1	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	102	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	85.1	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.0	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	95.2	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	81.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5207310)							
ES2325103-010	0990_POT143_230725	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	112	63.0	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5207310) - continued							
ES2325103-010	0990_POT143_230725	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	112	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	107	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	115	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5207312)							
ES2325102-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	85.2	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	103	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	100	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	95.5	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2325103**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Jul-2023
Site	: ----	Issue Date	: 04-Aug-2023
Sampler	: [redacted]	No. of samples received	: 30
Order number	: 60612561	No. of samples analysed	: 30

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)								
0990_POT134_230725,	0990_POT135_230725,	**25-Jul-2023**	**02-Aug-2023**	21-Jan-2024	✓	**04-Aug-2023**	21-Jan-2024	✓
0990_POT136_230725,	0990_POT137_230725,							
0990_POT138_230725,	0990_POT139_230725,							
0990_POT140_230725,	0990_POT141_230725,							
0990_POT142_230725,	0990_POT143_230725,							
0990_POT144_230725,	0990_POT145_230725,							
0990_POT146_230725,	0990_POT147_230725,							
0990_POT148_230725,	0990_QC100_230725,							
0990_QC101_230725,	0990_QC300_230725,							
0990_QC400_230725,	0990_QC500_230725							
HDPE (no PTFE) (EP231X)								
0990_POT149_230726,	0990_POT150_230726,	**26-Jul-2023**	**02-Aug-2023**	22-Jan-2024	✓	**04-Aug-2023**	22-Jan-2024	✓
0990_POT151_230726,	0990_POT152_230726,							
0990_POT153_230726,	0990_POT154_230726,							
0990_POT155_230726,	0990_POT156_230726,							
0990_QC103_230726,	0990_POT120_230726							

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)								
0990_POT134_230725,	0990_POT135_230725,	**25-Jul-2023**	**02-Aug-2023**	21-Jan-2024	✓	**04-Aug-2023**	21-Jan-2024	✓
0990_POT136_230725,	0990_POT137_230725,							
0990_POT138_230725,	0990_POT139_230725,							
0990_POT140_230725,	0990_POT141_230725,							
0990_POT142_230725,	0990_POT143_230725,							
0990_POT144_230725,	0990_POT145_230725,							
0990_POT146_230725,	0990_POT147_230725,							
0990_POT148_230725,	0990_QC100_230725,							
0990_QC101_230725,	0990_QC300_230725,							
0990_QC400_230725,	0990_QC500_230725							
HDPE (no PTFE) (EP231X)								
0990_POT149_230726,	0990_POT150_230726,	**26-Jul-2023**	**02-Aug-2023**	22-Jan-2024	✓	**04-Aug-2023**	22-Jan-2024	✓
0990_POT151_230726,	0990_POT152_230726,							
0990_POT153_230726,	0990_POT154_230726,							
0990_POT155_230726,	0990_POT156_230726,							
0990_QC103_230726,	0990_POT120_230726							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0990_POT134_230725,	0990_POT135_230725,	**25-Jul-2023**	**02-Aug-2023**	21-Jan-2024	✓	**04-Aug-2023**	21-Jan-2024	✓
0990_POT136_230725,	0990_POT137_230725,							
0990_POT138_230725,	0990_POT139_230725,							
0990_POT140_230725,	0990_POT141_230725,							
0990_POT142_230725,	0990_POT143_230725,							
0990_POT144_230725,	0990_POT145_230725,							
0990_POT146_230725,	0990_POT147_230725,							
0990_POT148_230725,	0990_QC100_230725,							
0990_QC101_230725,	0990_QC300_230725,							
0990_QC400_230725,	0990_QC500_230725							
HDPE (no PTFE) (EP231X)								
0990_POT149_230726,	0990_POT150_230726,	**26-Jul-2023**	**02-Aug-2023**	22-Jan-2024	✓	**04-Aug-2023**	22-Jan-2024	✓
0990_POT151_230726,	0990_POT152_230726,							
0990_POT153_230726,	0990_POT154_230726,							
0990_POT155_230726,	0990_POT156_230726,							
0990_QC103_230726,	0990_POT120_230726							

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)							
0990_POT134_230725, 0990_POT135_230725, 0990_POT136_230725, 0990_POT137_230725, 0990_POT138_230725, 0990_POT139_230725, 0990_POT140_230725, 0990_POT141_230725, 0990_POT142_230725, 0990_POT143_230725, 0990_POT144_230725, 0990_POT145_230725, 0990_POT146_230725, 0990_POT147_230725, 0990_POT148_230725, 0990_QC100_230725, 0990_QC101_230725, 0990_QC300_230725, 0990_QC400_230725, 0990_QC500_230725	**25-Jul-2023**	**02-Aug-2023**	21-Jan-2024	✓	**04-Aug-2023**	21-Jan-2024	✓
HDPE (no PTFE) (EP231X)							
0990_POT149_230726, 0990_POT150_230726, 0990_POT151_230726, 0990_POT152_230726, 0990_POT153_230726, 0990_POT154_230726, 0990_POT155_230726, 0990_POT156_230726, 0990_QC103_230726, 0990_POT120_230726	**26-Jul-2023**	**02-Aug-2023**	22-Jan-2024	✓	**04-Aug-2023**	22-Jan-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0990_POT134_230725, 0990_POT135_230725, 0990_POT136_230725, 0990_POT137_230725, 0990_POT138_230725, 0990_POT139_230725, 0990_POT140_230725, 0990_POT141_230725, 0990_POT142_230725, 0990_POT143_230725, 0990_POT144_230725, 0990_POT145_230725, 0990_POT146_230725, 0990_POT147_230725, 0990_POT148_230725, 0990_QC100_230725, 0990_QC101_230725, 0990_QC300_230725, 0990_QC400_230725, 0990_QC500_230725	**25-Jul-2023**	**02-Aug-2023**	21-Jan-2024	✓	**04-Aug-2023**	21-Jan-2024	✓
HDPE (no PTFE) (EP231X)							
0990_POT149_230726, 0990_POT150_230726, 0990_POT151_230726, 0990_POT152_230726, 0990_POT153_230726, 0990_POT154_230726, 0990_POT155_230726, 0990_POT156_230726, 0990_QC103_230726, 0990_POT120_230726	**26-Jul-2023**	**02-Aug-2023**	22-Jan-2024	✓	**04-Aug-2023**	22-Jan-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	37	**5.41**	**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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2325103**	Page	: 1 of 15
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Jul-2023 12:30
Order number	: 60612561	Date Analysis Commenced	: 01-Aug-2023
C-O-C number	: ----	Issue Date	: 04-Aug-2023 15:41
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 30		
No. of samples analysed	: 30		

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]		

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	0990_POT134_230725	0990_POT135_230725	0990_POT136_230725	0990_POT137_230725	0990_POT138_230725
				Sampling date / time	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00
					ES2325103-001	ES2325103-002	ES2325103-003	ES2325103-004	ES2325103-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0990_POT134_230725	0990_POT135_230725	0990_POT136_230725	0990_POT137_230725	0990_POT138_230725
				Sampling date / time	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325103-001	ES2325103-002	ES2325103-003	ES2325103-004	ES2325103-005
					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	<0.01	<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	%		**109**	**108**	**105**	**107**	**106**
13C8-PFOA	----	0.02	%		**102**	**102**	**102**	**105**	**105**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT139_230725	0990_POT140_230725	0990_POT141_230725	0990_POT142_230725	0990_POT143_230725
				Sampling date / time	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00
					ES2325103-006	ES2325103-007	ES2325103-008	ES2325103-009	ES2325103-010
					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: WATER (Matrix: WATER)				Sample ID	0990_POT139_230725	0990_POT140_230725	0990_POT141_230725	0990_POT142_230725	0990_POT143_230725
				Sampling date / time	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325103-006	ES2325103-007	ES2325103-008	ES2325103-009	ES2325103-010
					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	<0.05
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	%		**107**	**109**	**110**	**112**	**109**
13C8-PFOA	----	0.02	%		**106**	**102**	**101**	**104**	**103**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT144_230725	0990_POT145_230725	0990_POT149_230726	0990_POT150_230726	0990_POT151_230726
				Sampling date / time	25-Jul-2023 00:00	25-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00
					ES2325103-011	ES2325103-012	ES2325103-013	ES2325103-014	ES2325103-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<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	0990_POT144_230725	0990_POT145_230725	0990_POT149_230726	0990_POT150_230726	0990_POT151_230726
				Sampling date / time	25-Jul-2023 00:00	25-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325103-011	ES2325103-012	ES2325103-013	ES2325103-014	ES2325103-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<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	%		**105**	**112**	**103**	**111**	**108**
13C8-PFOA	----	0.02	%		**103**	**104**	**102**	**105**	**105**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT152_230726	0990_POT153_230726	0990_POT154_230726	0990_POT155_230726	0990_POT156_230726
				Sampling date / time	26-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00
					ES2325103-016	ES2325103-017	ES2325103-018	ES2325103-019	ES2325103-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0990_POT152_230726	0990_POT153_230726	0990_POT154_230726	0990_POT155_230726	0990_POT156_230726
				Sampling date / time	26-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00	26-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325103-016	ES2325103-017	ES2325103-018	ES2325103-019	ES2325103-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<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	%		**107**	**105**	**110**	**110**	**100**
13C8-PFOA	----	0.02	%		**105**	**101**	**103**	**104**	**103**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_QC103_230726	0990_POT146_230725	0990_POT147_230725	0990_POT148_230725	0990_QC100_230725
				Sampling date / time	26-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00
					ES2325103-022	ES2325103-024	ES2325103-025	ES2325103-026	ES2325103-027
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0990_QC103_230726	0990_POT146_230725	0990_POT147_230725	0990_POT148_230725	0990_QC100_230725
				Sampling date / time	26-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325103-022	ES2325103-024	ES2325103-025	ES2325103-026	ES2325103-027
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<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	%		**102**	**105**	**104**	**107**	**108**
13C8-PFOA	----	0.02	%		**101**	**100**	**100**	**102**	**102**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC101_230725	0990_QC300_230725	0990_QC400_230725	0990_QC500_230725	0990_POT120_230726
				Sampling date / time	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	26-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325103-029	ES2325103-031	ES2325103-032	ES2325103-033	ES2325103-034
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<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	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<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		<0.01	<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	0990_QC101_230725	0990_QC300_230725	0990_QC400_230725	0990_QC500_230725	0990_POT120_230726
				Sampling date / time	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	25-Jul-2023 00:00	26-Jul-2023 00:00
Compound	CAS Number	LOR	Unit		ES2325103-029	ES2325103-031	ES2325103-032	ES2325103-033	ES2325103-034
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.04**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.04**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.04**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	**105**	**108**	**103**	**102**
13C8-PFOA	----	0.02	%		**100**	**102**	**101**	**102**	**101**

Surrogate Control Limits

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

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

NATA

REPORT OF ANALYSIS

Report No. RN1401153

Client	: [redacted]	**Job No.**	: AECO09/230802
		Quote No.	: QT-02232
		Order No.	: 60612561_3_1
		Date Received	: 02-AUG-2023
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_23		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/015114	0990_QC203_230726	WATER 25/JUL/23
N23/015115	0990_QC200_230725	WATER 25/JUL/23
N23/015116	0990_QC201_230725	WATER 25/JUL/23

Lab Reg No.		N23/015114	N23/015115	N23/015116		
Date Sampled		25-JUL-2023	25-JUL-2023	25-JUL-2023		
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	<0.05	<0.05		NR70
PFPeA (2706-90-3)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxA (307-24-4)	ug/L	<0.01	<0.01	<0.01		NR70
PFHpA (375-85-9)	ug/L	<0.01	<0.01	<0.01		NR70
PFOA (335-67-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFNA (375-95-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02	<0.02		NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02	<0.02		NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05	<0.05		NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01	<0.01		NR70
PFPeS (2706-91-4)	ug/L	<0.01	<0.01	<0.01		NR70
PFHxS (355-46-4)	ug/L	<0.01	<0.01	<0.01		NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFOS (1763-23-1)	ug/L	<0.02	<0.02	<0.02		NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFBS (375-73-5)	ug/L	<0.01	<0.01	<0.01		NR70
PFOSA (754-91-6)	ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02	<0.02		NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02	<0.02		NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01	<0.01		NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05	<0.05		NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05	<0.05		NR70

REPORT OF ANALYSIS

Lab Reg No.		N23/015114	N23/015115	N23/015116		
Date Sampled		25-JUL-2023	25-JUL-2023	25-JUL-2023		
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01	<0.01		NR70
6:2 FTS (27619-97-2)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	<0.01	<0.01		NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02	<0.02		NR70
PFBA (Surrogate Recovery)	%	100	97	98		NR70
PFPeA (Surrogate Recovery)	%	97	96	94		NR70
PFHxA (Surrogate Recovery)	%	91	100	98		NR70
PFHpA (Surrogate Recovery)	%	92	98	95		NR70
PFOA (Surrogate Recovery)	%	99	102	101		NR70
PFNA (Surrogate Recovery)	%	91	96	99		NR70
PFDA (Surrogate Recovery)	%	97	94	102		NR70
PFUdA (Surrogate Recovery)	%	98	97	101		NR70
PFDoA (Surrogate Recovery)	%	92	91	91		NR70
PFTeDA (Surrogate Recovery)	%	95	91	100		NR70
PFHxDA (Surrogate Recovery)	%	79	79	83		NR70
FOUEA (Surrogate Recovery)	%	77	78	82		NR70
PFBS (Surrogate Recovery)	%	99	95	101		NR70
PFHxS (Surrogate Recovery)	%	89	98	95		NR70
PFOS (Surrogate Recovery)	%	93	98	99		NR70
PFOSA (Surrogate Recovery)	%	80	78	85		NR70
N-MeFOSA (Surrogate Recovery)	%	61	58	63		NR70
N-EtFOSA (Surrogate Recovery)	%	65	64	71		NR70
N-MeFOSAA (Surrogate Recovery)	%	91	94	100		NR70
N-EtFOSAA (Surrogate Recovery)	%	86	92	93		NR70
N-MeFOSE (Surrogate Recovery)	%	76	80	81		NR70
N-EtFOSE (Surrogate Recovery)	%	74	79	81		NR70
4:2 FTS (Surrogate Recovery)	%	80	85	81		NR70
6:2 FTS (Surrogate Recovery)	%	84	85	83		NR70
8:2 FTS (Surrogate Recovery)	%	82	87	97		NR70
8:2 diPAP (Surrogate Recovery)	%	110	107	145		NR70
Dates						
Date extracted		4-AUG-2023	4-AUG-2023	4-AUG-2023		
Date analysed		4-AUG-2023	4-AUG-2023	4-AUG-2023		

N23/015114
ÿ£¢to
N23/015116

[redacted]

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]

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: *RN1401123*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
Chemical Accreditation 198: [redacted]

[redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO09/230802 **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	119	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	92	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	103	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	95	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	96	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	91	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	93	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	94	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	97	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	113	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	97	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	119	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	86	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	92	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	99	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	97	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	108	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	87	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	89	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	95	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	117	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	95	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	99	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	102	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	93	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	94	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	103	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	93	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	96	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	108	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	108	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 and Resources

National Measurement Institute

NATA

REPORT OF ANALYSIS

Report No. RN1401149

Client	[redacted]	**Job No.**	: AECO06/230802
		Quote No.	: QT-02232
		Order No.	: 60612561/3_1
		Date Received	: 02-AUG-2023
Attention		**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_23		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/015112	0990_QC200_230724	WATER 24-JUL-23

Lab Reg No.		N23/015112				
Date Sampled		24-JUL-2023				
	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	0.050				NR70
PFHpS (375-92-8)	ug/L	<0.01				NR70
PFOS (1763-23-1)	ug/L	0.058				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.		N23/015112				
Date Sampled		24-JUL-2023				
	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)	%	106				NR70
PFPeA (Surrogate Recovery)	%	96				NR70
PFHxA (Surrogate Recovery)	%	97				NR70
PFHpA (Surrogate Recovery)	%	99				NR70
PFOA (Surrogate Recovery)	%	103				NR70
PFNA (Surrogate Recovery)	%	95				NR70
PFDA (Surrogate Recovery)	%	88				NR70
PFUdA (Surrogate Recovery)	%	90				NR70
PFDoA (Surrogate Recovery)	%	75				NR70
PFTeDA (Surrogate Recovery)	%	70				NR70
PFHxDA (Surrogate Recovery)	%	71				NR70
FOUEA (Surrogate Recovery)	%	78				NR70
PFBS (Surrogate Recovery)	%	105				NR70
PFHxS (Surrogate Recovery)	%	96				NR70
PFOS (Surrogate Recovery)	%	97				NR70
PFOSA (Surrogate Recovery)	%	76				NR70
N-MeFOSA (Surrogate Recovery)	%	45				NR70
N-EtFOSA (Surrogate Recovery)	%	49				NR70
N-MeFOSAA (Surrogate Recovery)	%	74				NR70
N-EtFOSAA (Surrogate Recovery)	%	67				NR70
N-MeFOSE (Surrogate Recovery)	%	65				NR70
N-EtFOSE (Surrogate Recovery)	%	63				NR70
4:2 FTS (Surrogate Recovery)	%	89				NR70
6:2 FTS (Surrogate Recovery)	%	86				NR70
8:2 FTS (Surrogate Recovery)	%	77				NR70
8:2 diPAP (Surrogate Recovery)	%	106				NR70
Dates						
Date extracted		4-AUG-2023				
Date analysed		4-AUG-2023				

N23/015112
ÿ£¢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]

This Report supersedes reports: *RN1401122*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
Chemical Accreditation 198: [redacted]

[redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/230802 **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	119	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	92	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	103	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	95	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	96	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	91	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	93	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	94	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	97	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	113	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	97	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	119	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	86	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	92	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	99	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	97	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	108	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	87	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	89	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	95	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	117	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	95	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	99	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	102	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	93	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	94	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	103	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	93	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	96	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	108	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	108	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]

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2326924**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: + [redacted]
Project	: NT_0990_PFASOMP_23	Page	: 1 of 4
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 11-Aug-2023 12:30	Issue Date	: 11-Aug-2023
Client Requested Due Date	: 18-Aug-2023	Scheduled Reporting Date	: **18-Aug-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 15.7'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 56 / 56

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
- This is an updated SRN which indicates updating sample ES2326924-040 and ES2326924-042 sample IDs.
- **Sample "0990_QC104_230810" received as "0990_QC105_230810"**
- **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.**
- **QC forward analysis will be conducted by NMI.**
- 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)
ES2326924-001	08-Aug-2023 00:00	0990_POT158_230808	✓
ES2326924-002	08-Aug-2023 00:00	0990_POT159_230808	✓
ES2326924-003	08-Aug-2023 00:00	0990_POT160_230808	✓
ES2326924-004	08-Aug-2023 00:00	0990_POT161_230808	✓
ES2326924-005	08-Aug-2023 00:00	0990_POT162_230808	✓
ES2326924-006	08-Aug-2023 00:00	0990_POT163_230808	✓
ES2326924-007	08-Aug-2023 00:00	0990_POT164_230808	✓
ES2326924-008	08-Aug-2023 00:00	0990_POT165_230808	✓
ES2326924-009	08-Aug-2023 00:00	0990_POT166_230808	✓
ES2326924-010	08-Aug-2023 00:00	0990_POT167_230808	✓
ES2326924-011	08-Aug-2023 00:00	0990_POT168_230808	✓
ES2326924-012	08-Aug-2023 00:00	0990_POT169_230808	✓
ES2326924-013	08-Aug-2023 00:00	0990_POT170_230808	✓
ES2326924-014	08-Aug-2023 00:00	0990_POT171_230808	✓
ES2326924-015	08-Aug-2023 00:00	0990_POT172_230808	✓
ES2326924-016	08-Aug-2023 00:00	0990_POT173_230808	✓
ES2326924-017	08-Aug-2023 00:00	0990_POT130_230808	✓
ES2326924-018	09-Aug-2023 00:00	0990_POT174_230809	✓
ES2326924-019	09-Aug-2023 00:00	0990_POT175_230809	✓
ES2326924-020	09-Aug-2023 00:00	0990_POT176_230809	✓
ES2326924-021	09-Aug-2023 00:00	0990_POT177_230809	✓
ES2326924-022	09-Aug-2023 00:00	0990_POT178_230809	✓
ES2326924-023	09-Aug-2023 00:00	0990_POT179_230809	✓
ES2326924-024	09-Aug-2023 00:00	0990_POT180_230809	✓
ES2326924-025	09-Aug-2023 00:00	0990_POT181_230809	✓
ES2326924-026	09-Aug-2023 00:00	0990_POT182_230809	✓
ES2326924-027	09-Aug-2023 00:00	0990_POT183_230809	✓
ES2326924-028	09-Aug-2023 00:00	0990_POT184_230809	✓
ES2326924-029	09-Aug-2023 00:00	0990_POT185_230809	✓
ES2326924-030	09-Aug-2023 00:00	0990_POT186_230809	✓
ES2326924-031	09-Aug-2023 00:00	0990_POT187_230809	✓
ES2326924-032	09-Aug-2023 00:00	0990_POT188_230809	✓
ES2326924-033	09-Aug-2023 00:00	0990_POT189_230809	✓
ES2326924-034	09-Aug-2023 00:00	0990_POT190_230809	✓
ES2326924-035	09-Aug-2023 00:00	0990_POT191_230809	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
ES2326924-036	09-Aug-2023 00:00	0990_POT192_230809	✓
ES2326924-037	09-Aug-2023 00:00	0990_POT193_230809	✓
ES2326924-038	09-Aug-2023 00:00	0990_POT194_230809	✓
ES2326924-039	10-Aug-2023 00:00	0990_POT195_230810	✓
ES2326924-040	10-Aug-2023 00:00	0990_OTH127_230810	✓
ES2326924-041	10-Aug-2023 00:00	0990_POT197_230810	✓
ES2326924-042	10-Aug-2023 00:00	0990_OTH128_230810	✓
ES2326924-043	10-Aug-2023 00:00	0990_POT199_230810	✓
ES2326924-044	10-Aug-2023 00:00	0990_POT200_230810	✓
ES2326924-045	08-Aug-2023 00:00	0990_QC100_230808	✓
ES2326924-046	08-Aug-2023 00:00	0990_QC300_230808	✓
ES2326924-047	08-Aug-2023 00:00	0990_QC400_230808	✓
ES2326924-048	08-Aug-2023 00:00	0990_QC500_230808	✓
ES2326924-049	08-Aug-2023 00:00	0990_QC101_230808	✓
ES2326924-050	08-Aug-2023 00:00	0990_QC102_230808	✓
ES2326924-051	08-Aug-2023 00:00	0990_QC301_230808	✓
ES2326924-052	08-Aug-2023 00:00	0990_QC401_230808	✓
ES2326924-053	09-Aug-2023 00:00	0990_QC103_230809	✓
ES2326924-054	10-Aug-2023 00:00	0990_QC302_230810	✓
ES2326924-055	10-Aug-2023 00:00	0990_QC402_230810	✓
ES2326924-056	10-Aug-2023 00:00	0990_QC104_230810	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

QUALITY CONTROL REPORT

Work Order	: **ES2326924**	Page	: 1 of 14
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 11-Aug-2023
Order number	: 60612561/3.1	Date Analysis Commenced	: 14-Aug-2023
C-O-C number	: ----	Issue Date	: 17-Aug-2023
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 56		
No. of samples analysed	: 56		

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]		

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: 5230364)									
ES2326924-001	0990_POT158_230808	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
ES2326924-011	0990_POT168_230808	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5230393)									
ES2326924-027	0990_POT183_230809	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5230413)									
ES2326924-040	0990_OTH127_230810	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

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: 5230413) - continued									
ES2326924-040	0990_OTH127_230810	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: 5230364)									
ES2326924-001	0990_POT158_230808	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
ES2326924-011	0990_POT168_230808	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: 5230393)									
ES2326924-027	0990_POT183_230809	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: 5230413)									
ES2326924-040	0990_OTH127_230810	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

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: 5230413) - continued									
ES2326924-040	0990_OTH127_230810	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: 5230364)									
ES2326924-001	0990_POT158_230808	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
ES2326924-011	0990_POT168_230808	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: 5230393)									
ES2326924-027	0990_POT183_230809	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: 5230393) - continued									
ES2326924-027	0990_POT183_230809	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: 5230413)									
ES2326924-040	0990_OTH127_230810	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: 5230364)									
ES2326924-001	0990_POT158_230808	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
ES2326924-011	0990_POT168_230808	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

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: 5230393)									
ES2326924-027	0990_POT183_230809	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: 5230413)									
ES2326924-040	0990_OTH127_230810	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: 5230364)									
ES2326924-001	0990_POT158_230808	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
ES2326924-011	0990_POT168_230808	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5230393)									
ES2326924-027	0990_POT183_230809	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5230413)									
ES2326924-040	0990_OTH127_230810	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5230364)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	99.7	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	101	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	112	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	103	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	118	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5230393)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	95.2	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	105	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	97.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	96.3	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5230413)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	92.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	95.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	95.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	104	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	90.1	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5235340)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	99.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	116	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	123	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	118	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	104	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	115	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5230364)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	97.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	113	72.0	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: 5230364) - continued								
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	108	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	100	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	97.7	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.8	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	103	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	119	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5230393)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	89.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	102	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	98.8	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	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	122	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5230413)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	98.7	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	96.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	97.7	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	107	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	103	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	99.0	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	109	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	83.1	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5235340)								

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: 5235340) - continued								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	103	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	120	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	116	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	112	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	116	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	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: 5230364)								
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	83.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	94.4	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	95.1	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	100	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	76.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.6	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5230393)								
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	79.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	82.6	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	95.5	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	106	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	76.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	82.5	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5230413)								

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: 5230413) - continued								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	111	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	93.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	92.0	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	105	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	110	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	105	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5235340)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	108	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	85.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	86.1	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.7	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	105	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	96.1	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: 5230364)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 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	0.25 µg/L	114	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	99.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	81.0	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5230393)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	96.0	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	112	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	122	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	87.6	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5230413)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	93.1	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	84.6	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: 5230413) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	118	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	81.7	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5235340)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	94.2	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	125	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	135	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	80.7	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5230364)							
ES2326924-001	0990_POT158_230808	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	97.0	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	95.9	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	98.9	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	106	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	91.6	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	97.2	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5230393)							
ES2326924-027	0990_POT183_230809	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	100	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	97.2	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	109	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	98.2	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	98.1	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5230413)							
ES2326924-040	0990_OTH127_230810	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	91.8	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	96.7	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	96.9	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	92.2	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	101	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	107	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5230364)							

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: 5230364) - continued							
ES2326924-001	0990_POT158_230808	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	97.9	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	113	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	105	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	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	100	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	98.8	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	111	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	104	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	100	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	118	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5230393)							
ES2326924-027	0990_POT183_230809	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	90.3	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	107	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	102	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	105	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	103	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	100	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	105	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	95.1	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	117	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5230413)							
ES2326924-040	0990_OTH127_230810	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	97.9	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	103	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	99.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	97.7	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	109	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	100	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	98.1	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	115	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	103	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	89.1	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5230364)							
ES2326924-001	0990_POT158_230808	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	107	67.0	137

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: 5230364) - continued							
ES2326924-001	0990_POT158_230808	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	79.0	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	93.3	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.3	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	105	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	75.3	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	94.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5230393)							
ES2326924-027	0990_POT183_230809	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	112	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	89.9	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	86.6	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	100	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	74.3	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	81.0	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5230413)							
ES2326924-040	0990_OTH127_230810	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	110	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	93.6	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	105	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	104	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	105	57.6	145
		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	89.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5230364)							
ES2326924-001	0990_POT158_230808	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	87.2	63.0	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5230364) - continued							
ES2326924-001	0990_POT158_230808	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	122	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	112	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	81.7	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5230393)							
ES2326924-027	0990_POT183_230809	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	83.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	120	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	102	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	78.3	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5230413)							
ES2326924-040	0990_OTH127_230810	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	105	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	111	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	120	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	82.1	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2326924**	Page	: 1 of 9
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 11-Aug-2023
Site	: ----	Issue Date	: 17-Aug-2023
Sampler	: [redacted]	No. of samples received	: 56
Order number	: 60612561/3.1	No. of samples analysed	: 56

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
	4				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	4	69	5.80	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	3	69	4.35	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) 0990_QC100_230808, 0990_QC300_230808, 0990_QC400_230808, 0990_QC500_230808, 0990_QC101_230808, 0990_QC102_230808, 0990_QC301_230808, 0990_QC401_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**16-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT158_230808, 0990_POT159_230808, 0990_POT160_230808, 0990_POT161_230808, 0990_POT162_230808, 0990_POT163_230808, 0990_POT164_230808, 0990_POT165_230808, 0990_POT166_230808, 0990_POT167_230808, 0990_POT168_230808, 0990_POT169_230808, 0990_POT170_230808, 0990_POT171_230808, 0990_POT172_230808, 0990_POT173_230808, 0990_POT130_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**17-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT193_230809, 0990_POT194_230809, 0990_QC103_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**16-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT174_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
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								
0990_POT175_230809,	0990_POT176_230809,	**09-Aug-2023**	**15-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
0990_POT177_230809,	0990_POT178_230809,							
0990_POT179_230809,	0990_POT180_230809,							
0990_POT181_230809,	0990_POT182_230809,							
0990_POT183_230809,	0990_POT184_230809,							
0990_POT185_230809,	0990_POT186_230809,							
0990_POT187_230809,	0990_POT188_230809,							
0990_POT189_230809,	0990_POT190_230809,							
0990_POT191_230809,	0990_POT192_230809							
HDPE (no PTFE) (EP231X)								
0990_POT195_230810,	0990_OTH127_230810,	**10-Aug-2023**	**14-Aug-2023**	06-Feb-2024	✓	**16-Aug-2023**	06-Feb-2024	✓
0990_POT197_230810,	0990_OTH128_230810,							
0990_POT199_230810,	0990_POT200_230810,							
0990_QC302_230810								
HDPE (no PTFE) (EP231X)								
0990_QC402_230810,	0990_QC104_230810	**10-Aug-2023**	**16-Aug-2023**	06-Feb-2024	✓	**17-Aug-2023**	06-Feb-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0990_QC100_230808, 0990_QC300_230808, 0990_QC400_230808, 0990_QC500_230808, 0990_QC101_230808, 0990_QC102_230808, 0990_QC301_230808, 0990_QC401_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**16-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT158_230808, 0990_POT159_230808, 0990_POT160_230808, 0990_POT161_230808, 0990_POT162_230808, 0990_POT163_230808, 0990_POT164_230808, 0990_POT165_230808, 0990_POT166_230808, 0990_POT167_230808, 0990_POT168_230808, 0990_POT169_230808, 0990_POT170_230808, 0990_POT171_230808, 0990_POT172_230808, 0990_POT173_230808, 0990_POT130_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**17-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT193_230809, 0990_POT194_230809, 0990_QC103_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**16-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT174_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT175_230809, 0990_POT176_230809, 0990_POT177_230809, 0990_POT178_230809, 0990_POT179_230809, 0990_POT180_230809, 0990_POT181_230809, 0990_POT182_230809, 0990_POT183_230809, 0990_POT184_230809, 0990_POT185_230809, 0990_POT186_230809, 0990_POT187_230809, 0990_POT188_230809, 0990_POT189_230809, 0990_POT190_230809, 0990_POT191_230809, 0990_POT192_230809	**09-Aug-2023**	**15-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT195_230810, 0990_OTH127_230810, 0990_POT197_230810, 0990_OTH128_230810, 0990_POT199_230810, 0990_POT200_230810, 0990_QC302_230810	**10-Aug-2023**	**14-Aug-2023**	06-Feb-2024	✓	**16-Aug-2023**	06-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC402_230810, 0990_QC104_230810	**10-Aug-2023**	**16-Aug-2023**	06-Feb-2024	✓	**17-Aug-2023**	06-Feb-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0990_QC100_230808, 0990_QC300_230808, 0990_QC400_230808, 0990_QC500_230808, 0990_QC101_230808, 0990_QC102_230808, 0990_QC301_230808, 0990_QC401_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**16-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT158_230808, 0990_POT159_230808, 0990_POT160_230808, 0990_POT161_230808, 0990_POT162_230808, 0990_POT163_230808, 0990_POT164_230808, 0990_POT165_230808, 0990_POT166_230808, 0990_POT167_230808, 0990_POT168_230808, 0990_POT169_230808, 0990_POT170_230808, 0990_POT171_230808, 0990_POT172_230808, 0990_POT173_230808, 0990_POT130_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**17-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT193_230809, 0990_POT194_230809, 0990_QC103_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**16-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT174_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT175_230809, 0990_POT176_230809, 0990_POT177_230809, 0990_POT178_230809, 0990_POT179_230809, 0990_POT180_230809, 0990_POT181_230809, 0990_POT182_230809, 0990_POT183_230809, 0990_POT184_230809, 0990_POT185_230809, 0990_POT186_230809, 0990_POT187_230809, 0990_POT188_230809, 0990_POT189_230809, 0990_POT190_230809, 0990_POT191_230809, 0990_POT192_230809	**09-Aug-2023**	**15-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT195_230810, 0990_OTH127_230810, 0990_POT197_230810, 0990_OTH128_230810, 0990_POT199_230810, 0990_POT200_230810, 0990_QC302_230810	**10-Aug-2023**	**14-Aug-2023**	06-Feb-2024	✓	**16-Aug-2023**	06-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC402_230810, 0990_QC104_230810	**10-Aug-2023**	**16-Aug-2023**	06-Feb-2024	✓	**17-Aug-2023**	06-Feb-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0990_QC100_230808, 0990_QC300_230808, 0990_QC400_230808, 0990_QC500_230808, 0990_QC101_230808, 0990_QC102_230808, 0990_QC301_230808, 0990_QC401_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**16-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT158_230808, 0990_POT159_230808, 0990_POT160_230808, 0990_POT161_230808, 0990_POT162_230808, 0990_POT163_230808, 0990_POT164_230808, 0990_POT165_230808, 0990_POT166_230808, 0990_POT167_230808, 0990_POT168_230808, 0990_POT169_230808, 0990_POT170_230808, 0990_POT171_230808, 0990_POT172_230808, 0990_POT173_230808, 0990_POT130_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**17-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT193_230809, 0990_POT194_230809, 0990_QC103_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**16-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT174_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT175_230809, 0990_POT176_230809, 0990_POT177_230809, 0990_POT178_230809, 0990_POT179_230809, 0990_POT180_230809, 0990_POT181_230809, 0990_POT182_230809, 0990_POT183_230809, 0990_POT184_230809, 0990_POT185_230809, 0990_POT186_230809, 0990_POT187_230809, 0990_POT188_230809, 0990_POT189_230809, 0990_POT190_230809, 0990_POT191_230809, 0990_POT192_230809	**09-Aug-2023**	**15-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT195_230810, 0990_OTH127_230810, 0990_POT197_230810, 0990_OTH128_230810, 0990_POT199_230810, 0990_POT200_230810, 0990_QC302_230810	**10-Aug-2023**	**14-Aug-2023**	06-Feb-2024	✓	**16-Aug-2023**	06-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC402_230810, 0990_QC104_230810	**10-Aug-2023**	**16-Aug-2023**	06-Feb-2024	✓	**17-Aug-2023**	06-Feb-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0990_QC100_230808, 0990_QC300_230808, 0990_QC400_230808, 0990_QC500_230808, 0990_QC101_230808, 0990_QC102_230808, 0990_QC301_230808, 0990_QC401_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**16-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT158_230808, 0990_POT159_230808, 0990_POT160_230808, 0990_POT161_230808, 0990_POT162_230808, 0990_POT163_230808, 0990_POT164_230808, 0990_POT165_230808, 0990_POT166_230808, 0990_POT167_230808, 0990_POT168_230808, 0990_POT169_230808, 0990_POT170_230808, 0990_POT171_230808, 0990_POT172_230808, 0990_POT173_230808, 0990_POT130_230808	**08-Aug-2023**	**14-Aug-2023**	04-Feb-2024	✓	**17-Aug-2023**	04-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT193_230809, 0990_POT194_230809, 0990_QC103_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**16-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT174_230809	**09-Aug-2023**	**14-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT175_230809, 0990_POT176_230809, 0990_POT177_230809, 0990_POT178_230809, 0990_POT179_230809, 0990_POT180_230809, 0990_POT181_230809, 0990_POT182_230809, 0990_POT183_230809, 0990_POT184_230809, 0990_POT185_230809, 0990_POT186_230809, 0990_POT187_230809, 0990_POT188_230809, 0990_POT189_230809, 0990_POT190_230809, 0990_POT191_230809, 0990_POT192_230809	**09-Aug-2023**	**15-Aug-2023**	05-Feb-2024	✓	**17-Aug-2023**	05-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT195_230810, 0990_OTH127_230810, 0990_POT197_230810, 0990_OTH128_230810, 0990_POT199_230810, 0990_POT200_230810, 0990_QC302_230810	**10-Aug-2023**	**14-Aug-2023**	06-Feb-2024	✓	**16-Aug-2023**	06-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC402_230810, 0990_QC104_230810	**10-Aug-2023**	**16-Aug-2023**	06-Feb-2024	✓	**17-Aug-2023**	06-Feb-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	69	**5.80**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	69	**5.80**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	69	**5.80**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	69	**4.35**	**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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2326924**	Page	: 1 of 27
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 11-Aug-2023 12:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 14-Aug-2023
C-O-C number	: ----	Issue Date	: 17-Aug-2023 14:21
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 56		
No. of samples analysed	: 56		

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]		

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	0990_POT158_230808	0990_POT159_230808	0990_POT160_230808	0990_POT161_230808	0990_POT162_230808
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00
					ES2326924-001	ES2326924-002	ES2326924-003	ES2326924-004	ES2326924-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0990_POT158_230808	0990_POT159_230808	0990_POT160_230808	0990_POT161_230808	0990_POT162_230808
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-001	ES2326924-002	ES2326924-003	ES2326924-004	ES2326924-005
					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	<0.01	<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	%		**100**	**108**	**102**	**111**	**109**
13C8-PFOA	----	0.02	%		**97.8**	**100**	**98.4**	**102**	**101**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT163_230808	0990_POT164_230808	0990_POT165_230808	0990_POT166_230808	0990_POT167_230808
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00
					ES2326924-006	ES2326924-007	ES2326924-008	ES2326924-009	ES2326924-010
					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: WATER (Matrix: WATER)				Sample ID	0990_POT163_230808	0990_POT164_230808	0990_POT165_230808	0990_POT166_230808	0990_POT167_230808
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-006	ES2326924-007	ES2326924-008	ES2326924-009	ES2326924-010
					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	<0.05
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	%		**107**	**102**	**105**	**103**	**98.6**
13C8-PFOA	----	0.02	%		**101**	**98.4**	**95.3**	**102**	**104**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT168_230808	0990_POT169_230808	0990_POT170_230808	0990_POT171_230808	0990_POT172_230808
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00
					ES2326924-011	ES2326924-012	ES2326924-013	ES2326924-014	ES2326924-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<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	0990_POT168_230808	0990_POT169_230808	0990_POT170_230808	0990_POT171_230808	0990_POT172_230808
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-011	ES2326924-012	ES2326924-013	ES2326924-014	ES2326924-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<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	%		**101**	**101**	**106**	**109**	**96.8**
13C8-PFOA	----	0.02	%		**98.4**	**101**	**103**	**100**	**99.4**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT173_230808	0990_POT130_230808	0990_POT174_230809	0990_POT175_230809	0990_POT176_230809
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00
					ES2326924-016	ES2326924-017	ES2326924-018	ES2326924-019	ES2326924-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0990_POT173_230808	0990_POT130_230808	0990_POT174_230809	0990_POT175_230809	0990_POT176_230809
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-016	ES2326924-017	ES2326924-018	ES2326924-019	ES2326924-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<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	%		**101**	**104**	**107**	**106**	**107**
13C8-PFOA	----	0.02	%		**97.4**	**99.7**	**103**	**99.9**	**99.7**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT177_230809	0990_POT178_230809	0990_POT179_230809	0990_POT180_230809	0990_POT181_230809
				Sampling date / time	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00
					ES2326924-021	ES2326924-022	ES2326924-023	ES2326924-024	ES2326924-025
					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: WATER (Matrix: WATER)				Sample ID	0990_POT177_230809	0990_POT178_230809	0990_POT179_230809	0990_POT180_230809	0990_POT181_230809
				Sampling date / time	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-021	ES2326924-022	ES2326924-023	ES2326924-024	ES2326924-025
					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	<0.05
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	%		**99.7**	**105**	**109**	**105**	**109**
13C8-PFOA	----	0.02	%		**98.6**	**101**	**99.2**	**100**	**101**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT182_230809	0990_POT183_230809	0990_POT184_230809	0990_POT185_230809	0990_POT186_230809
				Sampling date / time	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00
					ES2326924-026	ES2326924-027	ES2326924-028	ES2326924-029	ES2326924-030
					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: WATER (Matrix: WATER)				Sample ID	0990_POT182_230809	0990_POT183_230809	0990_POT184_230809	0990_POT185_230809	0990_POT186_230809
				Sampling date / time	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-026	ES2326924-027	ES2326924-028	ES2326924-029	ES2326924-030
					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	<0.05	<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	%		**108**	**109**	**106**	**104**	**101**
13C8-PFOA	----	0.02	%		**101**	**104**	**104**	**102**	**99.0**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT187_230809	0990_POT188_230809	0990_POT189_230809	0990_POT190_230809	0990_POT191_230809
				Sampling date / time	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00
					ES2326924-031	ES2326924-032	ES2326924-033	ES2326924-034	ES2326924-035
					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: WATER (Matrix: WATER)				Sample ID	0990_POT187_230809	0990_POT188_230809	0990_POT189_230809	0990_POT190_230809	0990_POT191_230809
				Sampling date / time	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-031	ES2326924-032	ES2326924-033	ES2326924-034	ES2326924-035
					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		<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	%		**106**	**102**	**112**	**103**	**107**
13C8-PFOA	----	0.02	%		**99.8**	**104**	**98.9**	**102**	**101**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT192_230809	0990_POT193_230809	0990_POT194_230809	0990_POT195_230810	0990_OTH127_230810
				Sampling date / time	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	10-Aug-2023 00:00	10-Aug-2023 00:00
					ES2326924-036	ES2326924-037	ES2326924-038	ES2326924-039	ES2326924-040
					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: WATER (Matrix: WATER)				Sample ID	0990_POT192_230809	0990_POT193_230809	0990_POT194_230809	0990_POT195_230810	0990_OTH127_230810
				Sampling date / time	09-Aug-2023 00:00	09-Aug-2023 00:00	09-Aug-2023 00:00	10-Aug-2023 00:00	10-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-036	ES2326924-037	ES2326924-038	ES2326924-039	ES2326924-040
					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		<0.01	<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	%		**105**	**94.8**	**99.5**	**89.4**	**98.0**
13C8-PFOA	----	0.02	%		**99.4**	**97.8**	**95.7**	**99.1**	**99.1**

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT197_230810	0990_OTH128_230810	0990_POT199_230810	0990_POT200_230810	0990_QC100_230808
				Sampling date / time	10-Aug-2023 00:00	10-Aug-2023 00:00	10-Aug-2023 00:00	10-Aug-2023 00:00	08-Aug-2023 00:00
					ES2326924-041	ES2326924-042	ES2326924-043	ES2326924-044	ES2326924-045
					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: WATER (Matrix: WATER)				Sample ID	0990_POT197_230810	0990_OTH128_230810	0990_POT199_230810	0990_POT200_230810	0990_QC100_230808
				Sampling date / time	10-Aug-2023 00:00	10-Aug-2023 00:00	10-Aug-2023 00:00	10-Aug-2023 00:00	08-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-041	ES2326924-042	ES2326924-043	ES2326924-044	ES2326924-045
					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	<0.05
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	%		**100**	**94.1**	**90.8**	**89.4**	**94.2**
13C8-PFOA	----	0.02	%		**98.4**	**101**	**98.7**	**94.5**	**94.8**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC300_230808	0990_QC400_230808	0990_QC500_230808	0990_QC101_230808	0990_QC102_230808
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-046	ES2326924-047	ES2326924-048	ES2326924-049	ES2326924-050
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0990_QC300_230808	0990_QC400_230808	0990_QC500_230808	0990_QC101_230808	0990_QC102_230808
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00	08-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-046	ES2326924-047	ES2326924-048	ES2326924-049	ES2326924-050
					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	%		**98.3**	**91.5**	**91.6**	**82.5**	**99.7**
13C8-PFOA	----	0.02	%		**96.6**	**90.9**	**90.2**	**92.0**	**93.2**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC301_230808	0990_QC401_230808	0990_QC103_230809	0990_QC302_230810	0990_QC402_230810
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	09-Aug-2023 00:00	10-Aug-2023 00:00	10-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-051	ES2326924-052	ES2326924-053	ES2326924-054	ES2326924-055
					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: WATER (Matrix: WATER)				Sample ID	0990_QC301_230808	0990_QC401_230808	0990_QC103_230809	0990_QC302_230810	0990_QC402_230810
				Sampling date / time	08-Aug-2023 00:00	08-Aug-2023 00:00	09-Aug-2023 00:00	10-Aug-2023 00:00	10-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2326924-051	ES2326924-052	ES2326924-053	ES2326924-054	ES2326924-055
					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	%		**93.5**	**85.9**	**91.7**	**103**	**112**
13C8-PFOA	----	0.02	%		**91.9**	**94.0**	**92.4**	**93.4**	**108**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC104_230810	----	----	----	----
				Sampling date / time	10-Aug-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2326924-056	--------	--------	--------	--------
					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	0990_QC104_230810	----	----	----	----
				Sampling date / time	10-Aug-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2326924-056	--------	--------	--------	--------
					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	%		**109**	----	----	----	----
13C8-PFOA	----	0.02	%		**105**	----	----	----	----

Surrogate Control Limits

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

REPORT OF ANALYSIS

Client	[redacted]	**Job No.**	: AECO06/230814
		Quote No.	: QT-02232
		Order No.	: 60612561_3_1
		Date Received	: 14-AUG-2023
Attention		**Sampled By**	: CLIENT
Project Name : NT_0990_PFASOMP_23			
Your Client Services Manager : [redacted]		**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/016218	0990_QC200_230808	WATER 08/08/2023
N23/016219	0990_QC201_230808	WATER 08/08/2023
N23/016220	0990_QC202_230808	WATER 08/08/2023
N23/016221	0990_QC203_230809	WATER 09/08/2023

Lab Reg No.		N23/016218	N23/016219	N23/016220	N23/016221	
Date Sampled		08-AUG-2023	08-AUG-2023	08-AUG-2023	09-AUG-2023	
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	<0.05	<0.05	<0.05	NR70
PFPeA (2706-90-3)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFHxA (307-24-4)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFHpA (375-85-9)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFOA (335-67-1)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFNA (375-95-1)	ug/L	<0.01	<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	<0.01	<0.01	<0.01	<0.01	NR70
PFHxS (355-46-4)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFOS (1763-23-1)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFBS (375-73-5)	ug/L	<0.01	<0.01	<0.01	<0.01	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.		N23/016218	N23/016219	N23/016220	N23/016221	
Date Sampled		08-AUG-2023	08-AUG-2023	08-AUG-2023	09-AUG-2023	
	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	<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)	%	88	93	98	93	NR70
PFPeA (Surrogate Recovery)	%	88	92	103	88	NR70
PFHxA (Surrogate Recovery)	%	90	97	91	95	NR70
PFHpA (Surrogate Recovery)	%	89	89	93	96	NR70
PFOA (Surrogate Recovery)	%	91	96	95	94	NR70
PFNA (Surrogate Recovery)	%	90	94	93	92	NR70
PFDA (Surrogate Recovery)	%	84	94	96	88	NR70
PFUdA (Surrogate Recovery)	%	93	91	95	87	NR70
PFDoA (Surrogate Recovery)	%	86	86	98	82	NR70
PFTeDA (Surrogate Recovery)	%	89	93	101	84	NR70
PFHxDA (Surrogate Recovery)	%	99	101	105	98	NR70
FOUEA (Surrogate Recovery)	%	81	82	85	76	NR70
PFBS (Surrogate Recovery)	%	85	84	92	90	NR70
PFHxS (Surrogate Recovery)	%	86	92	96	96	NR70
PFOS (Surrogate Recovery)	%	90	92	98	92	NR70
PFOSA (Surrogate Recovery)	%	74	77	81	76	NR70
N-MeFOSA (Surrogate Recovery)	%	68	64	72	65	NR70
N-EtFOSA (Surrogate Recovery)	%	69	65	73	67	NR70
N-MeFOSAA (Surrogate Recovery)	%	92	86	92	84	NR70
N-EtFOSAA (Surrogate Recovery)	%	86	92	88	87	NR70
N-MeFOSE (Surrogate Recovery)	%	75	71	78	74	NR70
N-EtFOSE (Surrogate Recovery)	%	75	72	80	74	NR70
4:2 FTS (Surrogate Recovery)	%	85	80	85	85	NR70
6:2 FTS (Surrogate Recovery)	%	76	80	77	73	NR70
8:2 FTS (Surrogate Recovery)	%	79	76	83	81	NR70
8:2 diPAP (Surrogate Recovery)	%	148	172	144	138	NR70
Dates						
Date extracted		16-AUG-2023	16-AUG-2023	16-AUG-2023	16-AUG-2023	
Date analysed		17-AUG-2023	17-AUG-2023	17-AUG-2023	17-AUG-2023	

N23/016218
to
N23/016222

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.

Selected PFAS surrogate recoveries are biased due to matrix effects.
High PFAS surrogate recoveries accepted - results corrected for recovery.

[redacted]

REPORT OF ANALYSIS

Report No. RN1402240

Client	: [redacted]	**Job No.**	: AECO06/230814
		Quote No.	: QT-02232
		Order No.	: 60612561_3_1
		Date Received	: 14-AUG-2023
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_23		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/016222	0990_QC204_230810	WATER 10/08/2023

Lab Reg No.		N23/016222				
Date Sampled		10-AUG-2023				
	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	<0.01				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	<0.01				NR70

[redacted]

REPORT OF ANALYSIS

Lab Reg No.		N23/016222				
Date Sampled		10-AUG-2023				
	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)	%	95				NR70
PFPeA (Surrogate Recovery)	%	92				NR70
PFHxA (Surrogate Recovery)	%	98				NR70
PFHpA (Surrogate Recovery)	%	95				NR70
PFOA (Surrogate Recovery)	%	99				NR70
PFNA (Surrogate Recovery)	%	92				NR70
PFDA (Surrogate Recovery)	%	93				NR70
PFUdA (Surrogate Recovery)	%	89				NR70
PFDoA (Surrogate Recovery)	%	89				NR70
PFTeDA (Surrogate Recovery)	%	96				NR70
PFHxDA (Surrogate Recovery)	%	120				NR70
FOUEA (Surrogate Recovery)	%	88				NR70
PFBS (Surrogate Recovery)	%	94				NR70
PFHxS (Surrogate Recovery)	%	95				NR70
PFOS (Surrogate Recovery)	%	99				NR70
PFOSA (Surrogate Recovery)	%	77				NR70
N-MeFOSA (Surrogate Recovery)	%	71				NR70
N-EtFOSA (Surrogate Recovery)	%	74				NR70
N-MeFOSAA (Surrogate Recovery)	%	82				NR70
N-EtFOSAA (Surrogate Recovery)	%	85				NR70
N-MeFOSE (Surrogate Recovery)	%	77				NR70
N-EtFOSE (Surrogate Recovery)	%	78				NR70
4:2 FTS (Surrogate Recovery)	%	84				NR70
6:2 FTS (Surrogate Recovery)	%	87				NR70
8:2 FTS (Surrogate Recovery)	%	72				NR70
8:2 diPAP (Surrogate Recovery)	%	177				NR70
Dates						
Date extracted		16-AUG-2023				
Date analysed		17-AUG-2023				

N23/016222

REPORT OF ANALYSIS

Lab Reg No.		N23/016222				
Date Sampled		10-AUG-2023				
	Units					Method

[redacted]

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: *RN1402204*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: Client Services

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

SAMPLE DETAILS

NMI Job Name: AECO06/230814

Total No. of Samples: 5

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N23/016218	21-AUG-2023	0990_QC200_230808	WATER 08/08/2023
N23/016219	21-AUG-2023	0990_QC201_230808	WATER 08/08/2023
N23/016220	21-AUG-2023	0990_QC202_230808	WATER 08/08/2023
N23/016221	21-AUG-2023	0990_QC203_230809	WATER 09/08/2023
N23/016222	21-AUG-2023	0990_QC204_230810	WATER 10/08/2023

[redacted]

SAMPLE RECEIVED CONDITION

Date samples received:	14-AUG-2023
Sample received in good order:	Yes
NMI Quotation no. provided:	NT_0990_PFASOMP_23
Client purchase order number:	60612561_3_1
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/230814 **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	118	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	101	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	102	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	104	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	146	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	114	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	108	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	118	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	118	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	96	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	105	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	114	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	111	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	107	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	106	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	105	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	107	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	106	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	102	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	109	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	100	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	112	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	108	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	103	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	106	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	122	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	115	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	109	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]

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2329042**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASOMP_23	Page	: 1 of 4
Order number	: 60612561/3.2	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 29-Aug-2023 08:30	Issue Date	: 01-Sep-2023
Client Requested Due Date	: 04-Sep-2023	Scheduled Reporting Date	: **04-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 26.2'C
Receipt Detail	:	No. of samples received / analysed	: 45 / 45

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample 0990_POT128_230823 received extra.**
- **(01/09/2023) This is an updated SRN which reflects the addition of PFAS analysis for sample 045.**
- **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.**
- **QC Forward analysis will be conducted by NMI.**
- 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)
ES2329042-001	22-Aug-2023 00:00	0990_POT157_230822	✓
ES2329042-002	22-Aug-2023 00:00	0990_POT196_230822	✓
ES2329042-003	22-Aug-2023 00:00	0990_POT198_230822	✓
ES2329042-004	22-Aug-2023 00:00	0990_POT201_230822	✓
ES2329042-005	22-Aug-2023 00:00	0990_POT202_230822	✓
ES2329042-006	22-Aug-2023 00:00	0990_POT203_230822	✓
ES2329042-007	22-Aug-2023 00:00	0990_POT204_230822	✓
ES2329042-008	22-Aug-2023 00:00	0990_POT205_230822	✓
ES2329042-009	22-Aug-2023 00:00	0990_POT206_230822	✓
ES2329042-010	22-Aug-2023 00:00	0990_POT207_230822	✓
ES2329042-011	22-Aug-2023 00:00	0990_POT208_230822	✓
ES2329042-012	22-Aug-2023 00:00	0990_POT209_230822	✓
ES2329042-013	22-Aug-2023 00:00	0990_POT210_230822	✓
ES2329042-014	22-Aug-2023 00:00	0990_POT129_230822	✓
ES2329042-015	23-Aug-2023 00:00	0990_POT214_230823	✓
ES2329042-016	22-Aug-2023 00:00	0990_OTH119_230822	✓
ES2329042-017	22-Aug-2023 00:00	0990_POT212_230822	✓
ES2329042-018	23-Aug-2023 00:00	0990_POT213_230823	✓
ES2329042-019	22-Aug-2023 00:00	0990_POT126_230822	✓
ES2329042-020	22-Aug-2023 00:00	0990_POT120_230822	✓
ES2329042-021	23-Aug-2023 00:00	0990_POT112_230823	✓
ES2329042-022	23-Aug-2023 00:00	0990_POT211_230823	✓
ES2329042-023	23-Aug-2023 00:00	0990_POT113_230823	✓
ES2329042-024	23-Aug-2023 00:00	0990_POT131_230823	✓
ES2329042-025	23-Aug-2023 00:00	0990_POT121_230823	✓
ES2329042-026	23-Aug-2023 00:00	0990_POT114_230823	✓
ES2329042-027	24-Aug-2023 00:00	0990_OTH117_230824	✓
ES2329042-028	24-Aug-2023 00:00	0990_POT215_230824	✓
ES2329042-029	24-Aug-2023 00:00	0990_POT124_230824	✓
ES2329042-030	24-Aug-2023 00:00	0990_POT125_230824	✓
ES2329042-031	24-Aug-2023 00:00	0990_POT216_230824	✓
ES2329042-032	24-Aug-2023 00:00	0990_OTH118_230824	✓
ES2329042-033	24-Aug-2023 00:00	0990_POT127_230824	✓
ES2329042-034	22-Aug-2023 00:00	0990_QC100_230822	✓
ES2329042-035	24-Aug-2023 00:00	0990_QC402_230824	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
ES2329042-036	22-Aug-2023 00:00	0990_QC101_230822	✓
ES2329042-037	23-Aug-2023 00:00	0990_QC102_230823	✓
ES2329042-038	24-Aug-2023 00:00	0990_QC103_230824	✓
ES2329042-039	22-Aug-2023 00:00	0990_QC300_230822	✓
ES2329042-040	22-Aug-2023 00:00	0990_QC400_230822	✓
ES2329042-041	22-Aug-2023 00:00	0990_QC500_230822	✓
ES2329042-042	23-Aug-2023 00:00	0990_QC301_230823	✓
ES2329042-043	23-Aug-2023 00:00	0990_QC401_230823	✓
ES2329042-044	24-Aug-2023 00:00	0990_QC302_230824	✓
ES2329042-045	22-Aug-2023 00:00	0990_POT128_230823	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

QUALITY CONTROL REPORT

Work Order	: **ES2329042**	Page	: 1 of 7
Client	: [redacted]	Laboratory	: [redacted]
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Aug-2023
Order number	: 60612561/3.2	Date Analysis Commenced	: 29-Aug-2023
C-O-C number	: ----	Issue Date	: 04-Sep-2023
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 45		
No. of samples analysed	: 45		

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]		

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: 5267173)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	98.6	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	92.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	97.2	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5267174)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	104	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	106	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	105	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	98.4	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5267267)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	112	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	118	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	118	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	98.1	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5272512)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	125	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	112	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	114	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	122	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	122	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5267173)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	90.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	118	72.0	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: 5267173) - continued								
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	103	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	111	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	100	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	105	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: 5267174)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	82.5	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	96.0	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	103	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	119	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	97.3	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	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5267267)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	109	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	120	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	113	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	129	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	124	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	123	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	113	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	119	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	114	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5272512)								

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: 5272512) - continued								
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	129	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	126	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	124	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	122	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	127	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	115	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	113	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	121	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	116	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5267173)								
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	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	108	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	110	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	91.7	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	102	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5267174)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.9	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	97.4	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	106	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	96.4	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	109	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.7	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5267267)								

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: 5267267) - continued								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	113	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	104	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	106	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	115	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	111	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: 5272512)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	125	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	123	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	125	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	116	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	118	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5267173)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	101	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	104	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5267174)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	87.6	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	95.4	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	105	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	95.4	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5267267)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	113	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	120	64.0	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5267267) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	116	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	115	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5272512)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	107	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	121	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
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	94.5	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.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2329042**	Page	: 1 of 9
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Aug-2023
Site	: ----	Issue Date	: 04-Sep-2023
Sampler	: [redacted]	No. of samples received	: 45
Order number	: 60612561/3.2	No. of samples analysed	: 45

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	55	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	55	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) 0990_POT128_230823	**22-Aug-2023**	**01-Sep-2023**	18-Feb-2024	✓	**04-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC300_230822, 0990_QC400_230822, 0990_QC500_230822	**22-Aug-2023**	**30-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT157_230822, 0990_POT196_230822, 0990_POT198_230822, 0990_POT201_230822, 0990_POT202_230822, 0990_POT203_230822, 0990_POT204_230822, 0990_POT205_230822, 0990_POT206_230822, 0990_POT207_230822, 0990_POT208_230822, 0990_POT209_230822, 0990_POT210_230822, 0990_POT129_230822, 0990_OTH119_230822, 0990_POT212_230822, 0990_POT126_230822, 0990_POT120_230822, 0990_QC100_230822, 0990_QC101_230822	**22-Aug-2023**	**31-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC301_230823, 0990_QC401_230823	**23-Aug-2023**	**30-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
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							
0990_POT214_230823, 0990_POT213_230823, 0990_POT112_230823, 0990_POT211_230823, 0990_POT113_230823, 0990_POT131_230823, 0990_POT121_230823, 0990_POT114_230823, 0990_QC102_230823	**23-Aug-2023**	**31-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC103_230824, 0990_QC302_230824	**24-Aug-2023**	**30-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_230824, 0990_POT215_230824, 0990_POT124_230824, 0990_POT125_230824, 0990_POT216_230824, 0990_OTH118_230824, 0990_POT127_230824, 0990_QC402_230824	**24-Aug-2023**	**31-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0990_POT128_230823	**22-Aug-2023**	**01-Sep-2023**	18-Feb-2024	✓	**04-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC300_230822, 0990_QC400_230822, 0990_QC500_230822	**22-Aug-2023**	**30-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT157_230822, 0990_POT196_230822, 0990_POT198_230822, 0990_POT201_230822, 0990_POT202_230822, 0990_POT203_230822, 0990_POT204_230822, 0990_POT205_230822, 0990_POT206_230822, 0990_POT207_230822, 0990_POT208_230822, 0990_POT209_230822, 0990_POT210_230822, 0990_POT129_230822, 0990_OTH119_230822, 0990_POT212_230822, 0990_POT126_230822, 0990_POT120_230822, 0990_QC100_230822, 0990_QC101_230822	**22-Aug-2023**	**31-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC301_230823, 0990_QC401_230823	**23-Aug-2023**	**30-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT214_230823, 0990_POT213_230823, 0990_POT112_230823, 0990_POT211_230823, 0990_POT113_230823, 0990_POT131_230823, 0990_POT121_230823, 0990_POT114_230823, 0990_QC102_230823	**23-Aug-2023**	**31-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC103_230824, 0990_QC302_230824	**24-Aug-2023**	**30-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_230824, 0990_POT215_230824, 0990_POT124_230824, 0990_POT125_230824, 0990_POT216_230824, 0990_OTH118_230824, 0990_POT127_230824, 0990_QC402_230824	**24-Aug-2023**	**31-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0990_POT128_230823	**22-Aug-2023**	**01-Sep-2023**	18-Feb-2024	✓	**04-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC300_230822, 0990_QC400_230822, 0990_QC500_230822	**22-Aug-2023**	**30-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT157_230822, 0990_POT196_230822, 0990_POT198_230822, 0990_POT201_230822, 0990_POT202_230822, 0990_POT203_230822, 0990_POT204_230822, 0990_POT205_230822, 0990_POT206_230822, 0990_POT207_230822, 0990_POT208_230822, 0990_POT209_230822, 0990_POT210_230822, 0990_POT129_230822, 0990_OTH119_230822, 0990_POT212_230822, 0990_POT126_230822, 0990_POT120_230822, 0990_QC100_230822, 0990_QC101_230822	**22-Aug-2023**	**31-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC301_230823, 0990_QC401_230823	**23-Aug-2023**	**30-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT214_230823, 0990_POT213_230823, 0990_POT112_230823, 0990_POT211_230823, 0990_POT113_230823, 0990_POT131_230823, 0990_POT121_230823, 0990_POT114_230823, 0990_QC102_230823	**23-Aug-2023**	**31-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC103_230824, 0990_QC302_230824	**24-Aug-2023**	**30-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_230824, 0990_POT215_230824, 0990_POT124_230824, 0990_POT125_230824, 0990_POT216_230824, 0990_OTH118_230824, 0990_POT127_230824, 0990_QC402_230824	**24-Aug-2023**	**31-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0990_POT128_230823	**22-Aug-2023**	**01-Sep-2023**	18-Feb-2024	✓	**04-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X)							
0990_QC300_230822, 0990_QC400_230822, 0990_QC500_230822	**22-Aug-2023**	**30-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X)							
0990_POT157_230822, 0990_POT196_230822, 0990_POT198_230822, 0990_POT201_230822, 0990_POT202_230822, 0990_POT203_230822, 0990_POT204_230822, 0990_POT205_230822, 0990_POT206_230822, 0990_POT207_230822, 0990_POT208_230822, 0990_POT209_230822, 0990_POT210_230822, 0990_POT129_230822, 0990_OTH119_230822, 0990_POT212_230822, 0990_POT126_230822, 0990_POT120_230822, 0990_QC100_230822, 0990_QC101_230822	**22-Aug-2023**	**31-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X)							
0990_QC301_230823, 0990_QC401_230823	**23-Aug-2023**	**30-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X)							
0990_POT214_230823, 0990_POT213_230823, 0990_POT112_230823, 0990_POT211_230823, 0990_POT113_230823, 0990_POT131_230823, 0990_POT121_230823, 0990_POT114_230823, 0990_QC102_230823	**23-Aug-2023**	**31-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X)							
0990_QC103_230824, 0990_QC302_230824	**24-Aug-2023**	**30-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH117_230824, 0990_POT215_230824, 0990_POT124_230824, 0990_POT125_230824, 0990_POT216_230824, 0990_OTH118_230824, 0990_POT127_230824, 0990_QC402_230824	**24-Aug-2023**	**31-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0990_POT128_230823	**22-Aug-2023**	**01-Sep-2023**	18-Feb-2024	✓	**04-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC300_230822, 0990_QC400_230822, 0990_QC500_230822	**22-Aug-2023**	**30-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT157_230822, 0990_POT196_230822, 0990_POT198_230822, 0990_POT201_230822, 0990_POT202_230822, 0990_POT203_230822, 0990_POT204_230822, 0990_POT205_230822, 0990_POT206_230822, 0990_POT207_230822, 0990_POT208_230822, 0990_POT209_230822, 0990_POT210_230822, 0990_POT129_230822, 0990_OTH119_230822, 0990_POT212_230822, 0990_POT126_230822, 0990_POT120_230822, 0990_QC100_230822, 0990_QC101_230822	**22-Aug-2023**	**31-Aug-2023**	18-Feb-2024	✓	**01-Sep-2023**	18-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC301_230823, 0990_QC401_230823	**23-Aug-2023**	**30-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT214_230823, 0990_POT213_230823, 0990_POT112_230823, 0990_POT211_230823, 0990_POT113_230823, 0990_POT131_230823, 0990_POT121_230823, 0990_POT114_230823, 0990_QC102_230823	**23-Aug-2023**	**31-Aug-2023**	19-Feb-2024	✓	**01-Sep-2023**	19-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC103_230824, 0990_QC302_230824	**24-Aug-2023**	**30-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_230824, 0990_POT215_230824, 0990_POT124_230824, 0990_POT125_230824, 0990_POT216_230824, 0990_OTH118_230824, 0990_POT127_230824, 0990_QC402_230824	**24-Aug-2023**	**31-Aug-2023**	20-Feb-2024	✓	**01-Sep-2023**	20-Feb-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	55	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	55	**7.27**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	55	**7.27**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	55	**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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2329042**	Page	: 1 of 21
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Aug-2023 08:30
Order number	: 60612561/3.2	Date Analysis Commenced	: 29-Aug-2023
C-O-C number	: ----	Issue Date	: 04-Sep-2023 10:30
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 45		
No. of samples analysed	: 45		

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]		

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	0990_POT157_230822	0990_POT196_230822	0990_POT198_230822	0990_POT201_230822	0990_POT202_230822
				Sampling date / time	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00
					ES2329042-001	ES2329042-002	ES2329042-003	ES2329042-004	ES2329042-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0990_POT157_230822	0990_POT196_230822	0990_POT198_230822	0990_POT201_230822	0990_POT202_230822
				Sampling date / time	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-001	ES2329042-002	ES2329042-003	ES2329042-004	ES2329042-005
					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	<0.01	<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	%		**103**	**106**	**110**	**104**	**111**
13C8-PFOA	----	0.02	%		**99.6**	**105**	**112**	**113**	**113**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT203_230822	0990_POT204_230822	0990_POT205_230822	0990_POT206_230822	0990_POT207_230822
				Sampling date / time	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00
					ES2329042-006	ES2329042-007	ES2329042-008	ES2329042-009	ES2329042-010
					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: WATER (Matrix: WATER)				Sample ID	0990_POT203_230822	0990_POT204_230822	0990_POT205_230822	0990_POT206_230822	0990_POT207_230822
				Sampling date / time	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-006	ES2329042-007	ES2329042-008	ES2329042-009	ES2329042-010
					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	<0.05
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	%		**116**	**112**	**118**	**115**	**119**
13C8-PFOA	----	0.02	%		**116**	**120**	**115**	**117**	**111**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT208_230822	0990_POT209_230822	0990_POT210_230822	0990_POT129_230822	0990_POT214_230823
				Sampling date / time	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	23-Aug-2023 00:00
					ES2329042-011	ES2329042-012	ES2329042-013	ES2329042-014	ES2329042-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<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	0990_POT208_230822	0990_POT209_230822	0990_POT210_230822	0990_POT129_230822	0990_POT214_230823
				Sampling date / time	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00	23-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-011	ES2329042-012	ES2329042-013	ES2329042-014	ES2329042-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<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	%		**112**	**116**	**119**	**117**	**112**
13C8-PFOA	----	0.02	%		**118**	**117**	**116**	**112**	**112**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_OTH119_230822	0990_POT212_230822	0990_POT213_230823	0990_POT126_230822	0990_POT120_230822
				Sampling date / time	22-Aug-2023 00:00	22-Aug-2023 00:00	23-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00
					ES2329042-016	ES2329042-017	ES2329042-018	ES2329042-019	ES2329042-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.03**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH119_230822	0990_POT212_230822	0990_POT213_230823	0990_POT126_230822	0990_POT120_230822
				Sampling date / time	22-Aug-2023 00:00	22-Aug-2023 00:00	23-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-016	ES2329042-017	ES2329042-018	ES2329042-019	ES2329042-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.05**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.05**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.05**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**114**	**106**	**110**	**114**	**97.6**
13C8-PFOA	----	0.02	%		**118**	**112**	**111**	**112**	**106**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT112_230823	0990_POT211_230823	0990_POT113_230823	0990_POT131_230823	0990_POT121_230823
				Sampling date / time	23-Aug-2023 00:00	23-Aug-2023 00:00	23-Aug-2023 00:00	23-Aug-2023 00:00	23-Aug-2023 00:00
					ES2329042-021	ES2329042-022	ES2329042-023	ES2329042-024	ES2329042-025
					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		**0.05**	<0.01	**0.03**	<0.01	**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		**0.03**	<0.01	**0.02**	<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		<0.01	<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	0990_POT112_230823	0990_POT211_230823	0990_POT113_230823	0990_POT131_230823	0990_POT121_230823
				Sampling date / time	23-Aug-2023 00:00	23-Aug-2023 00:00	23-Aug-2023 00:00	23-Aug-2023 00:00	23-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-021	ES2329042-022	ES2329042-023	ES2329042-024	ES2329042-025
					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	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.08**	<0.01	**0.05**	<0.01	**0.05**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.08**	<0.01	**0.05**	<0.01	**0.05**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.08**	<0.01	**0.05**	<0.01	**0.05**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**98.7**	**100**	**106**	**109**
13C8-PFOA	----	0.02	%		**111**	**113**	**114**	**117**	**116**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT114_230823	0990_OTH117_230824	0990_POT215_230824	0990_POT124_230824	0990_POT125_230824
				Sampling date / time	23-Aug-2023 00:00	24-Aug-2023 00:00	24-Aug-2023 00:00	24-Aug-2023 00:00	24-Aug-2023 00:00
					ES2329042-026	ES2329042-027	ES2329042-028	ES2329042-029	ES2329042-030
					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: WATER (Matrix: WATER)				Sample ID	0990_POT114_230823	0990_OTH117_230824	0990_POT215_230824	0990_POT124_230824	0990_POT125_230824
				Sampling date / time	23-Aug-2023 00:00	24-Aug-2023 00:00	24-Aug-2023 00:00	24-Aug-2023 00:00	24-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-026	ES2329042-027	ES2329042-028	ES2329042-029	ES2329042-030
					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	<0.05	<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	%		**107**	**98.6**	**106**	**107**	**105**
13C8-PFOA	----	0.02	%		**115**	**115**	**116**	**119**	**117**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT216_230824	0990_OTH118_230824	0990_POT127_230824	0990_QC100_230822	0990_QC402_230824
				Sampling date / time	24-Aug-2023 00:00	24-Aug-2023 00:00	24-Aug-2023 00:00	22-Aug-2023 00:00	24-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-031	ES2329042-032	ES2329042-033	ES2329042-034	ES2329042-035
					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: WATER (Matrix: WATER)				Sample ID	0990_POT216_230824	0990_OTH118_230824	0990_POT127_230824	0990_QC100_230822	0990_QC402_230824
				Sampling date / time	24-Aug-2023 00:00	24-Aug-2023 00:00	24-Aug-2023 00:00	22-Aug-2023 00:00	24-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-031	ES2329042-032	ES2329042-033	ES2329042-034	ES2329042-035
					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		<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	%		**101**	**104**	**98.8**	**97.6**	**97.4**
13C8-PFOA	----	0.02	%		**114**	**115**	**114**	**116**	**113**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC101_230822	0990_QC102_230823	0990_QC103_230824	0990_QC300_230822	0990_QC400_230822
				Sampling date / time	22-Aug-2023 00:00	23-Aug-2023 00:00	24-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-036	ES2329042-037	ES2329042-038	ES2329042-039	ES2329042-040
					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: WATER (Matrix: WATER)				Sample ID	0990_QC101_230822	0990_QC102_230823	0990_QC103_230824	0990_QC300_230822	0990_QC400_230822
				Sampling date / time	22-Aug-2023 00:00	23-Aug-2023 00:00	24-Aug-2023 00:00	22-Aug-2023 00:00	22-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-036	ES2329042-037	ES2329042-038	ES2329042-039	ES2329042-040
					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		<0.01	<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	%		**95.0**	**93.4**	**105**	**110**	**105**
13C8-PFOA	----	0.02	%		**109**	**111**	**99.8**	**103**	**94.6**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC500_230822	0990_QC301_230823	0990_QC401_230823	0990_QC302_230824	0990_POT128_230823
				Sampling date / time	22-Aug-2023 00:00	23-Aug-2023 00:00	23-Aug-2023 00:00	24-Aug-2023 00:00	22-Aug-2023 00:00
Compound	CAS Number	LOR	Unit		ES2329042-041	ES2329042-042	ES2329042-043	ES2329042-044	ES2329042-045
					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: WATER (Matrix: WATER)			Sample ID	0990_QC500_230822	0990_QC301_230823	0990_QC401_230823	0990_QC302_230824	0990_POT128_230823
			Sampling date / time	22-Aug-2023 00:00	23-Aug-2023 00:00	23-Aug-2023 00:00	24-Aug-2023 00:00	22-Aug-2023 00:00
Compound	CAS Number	LOR	Unit	ES2329042-041	ES2329042-042	ES2329042-043	ES2329042-044	ES2329042-045
				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	<0.05
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	%	**106**	**103**	**101**	**102**	**102**
13C8-PFOA	----	0.02	%	**98.0**	**98.5**	**97.7**	**99.9**	**100**

Surrogate Control Limits

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

REPORT OF ANALYSIS

Report No. RN1404274

Client	: [redacted]	**Job No.**	: AECO06/230830/1
		Quote No.	: QT-02018
		Order No.	: 60612561_3_2
		Date Received	: 30-AUG-2023
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_23		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/017688	0990_QC200_230822	WATER 22/08/2023
N23/017689	0990_QC201_230822	WATER 22/08/2023
N23/017690	0990_QC202_230823	WATER 23/08/2023
N23/017691	0990_QC203_230824	WATER 24/08/2023

Lab Reg No.		N23/017688	N23/017689	N23/017690	N23/017691	
Date Sampled		22-AUG-2023	22-AUG-2023	23-AUG-2023	24-AUG-2023	
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	<0.05	<0.05	<0.05	NR70
PFPeA (2706-90-3)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFHxA (307-24-4)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFHpA (375-85-9)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFOA (335-67-1)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFNA (375-95-1)	ug/L	<0.01	<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	<0.01	<0.01	<0.01	<0.01	NR70
PFHxS (355-46-4)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFOS (1763-23-1)	ug/L	<0.02	<0.02	<0.02	<0.02	NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFBS (375-73-5)	ug/L	<0.01	<0.01	<0.01	<0.01	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

Report No. RN1404274

Lab Reg No.		N23/017688	N23/017689	N23/017690	N23/017691	
Date Sampled		22-AUG-2023	22-AUG-2023	23-AUG-2023	24-AUG-2023	
	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	<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)	%	95	96	93	94	NR70
PFPeA (Surrogate Recovery)	%	97	101	96	97	NR70
PFHxA (Surrogate Recovery)	%	93	98	98	94	NR70
PFHpA (Surrogate Recovery)	%	98	97	93	92	NR70
PFOA (Surrogate Recovery)	%	100	101	99	97	NR70
PFNA (Surrogate Recovery)	%	99	102	98	99	NR70
PFDA (Surrogate Recovery)	%	95	101	98	97	NR70
PFUdA (Surrogate Recovery)	%	93	93	92	96	NR70
PFDoA (Surrogate Recovery)	%	89	100	93	94	NR70
PFTeDA (Surrogate Recovery)	%	96	96	101	97	NR70
PFHxDA (Surrogate Recovery)	%	103	103	108	104	NR70
FOUEA (Surrogate Recovery)	%	79	72	77	78	NR70
PFBS (Surrogate Recovery)	%	97	95	91	90	NR70
PFHxS (Surrogate Recovery)	%	99	101	96	99	NR70
PFOS (Surrogate Recovery)	%	91	98	99	98	NR70
PFOSA (Surrogate Recovery)	%	79	81	79	84	NR70
N-MeFOSA (Surrogate Recovery)	%	63	65	65	69	NR70
N-EtFOSA (Surrogate Recovery)	%	63	69	66	70	NR70
N-MeFOSAA (Surrogate Recovery)	%	93	91	90	104	NR70
N-EtFOSAA (Surrogate Recovery)	%	94	88	93	98	NR70
N-MeFOSE (Surrogate Recovery)	%	74	75	75	73	NR70
N-EtFOSE (Surrogate Recovery)	%	69	71	75	75	NR70
4:2 FTS (Surrogate Recovery)	%	96	92	84	90	NR70
6:2 FTS (Surrogate Recovery)	%	84	83	83	84	NR70
8:2 FTS (Surrogate Recovery)	%	76	86	78	89	NR70
8:2 diPAP (Surrogate Recovery)	%	103	104	111	104	NR70
Dates						
Date extracted		4-SEP-2023	4-SEP-2023	4-SEP-2023	4-SEP-2023	
Date analysed		5-SEP-2023	5-SEP-2023	5-SEP-2023	5-SEP-2023	

N23/017688
to
N23/017691

[redacted]

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]

NATA
WORLD RECOGNISED
ACCREDITATION

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: *RN1404249*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

[redacted]

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: Client Services

Address: [redacted]

Email: [redacted]

SAMPLE DETAILS

NMI Job Name: AECO06/230830/1

Total No. of Samples: 4

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N23/017688	6-SEP-2023	0990_QC200_230822	WATER 22/08/2023
N23/017689	6-SEP-2023	0990_QC201_230822	WATER 22/08/2023
N23/017690	6-SEP-2023	0990_QC202_230823	WATER 23/08/2023
N23/017691	6-SEP-2023	0990_QC203_230824	WATER 24/08/2023

SAMPLE RECEIVED CONDITION

Date samples received:	30-AUG-2023
Sample received in good order:	Yes
NMI Quotation no. provided:	
Client purchase order number:	60612561_3_2
Temperature of samples:	Chilled
Comments:	ALL OK
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/230830/1 **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	123	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	115	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	113	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	114	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	112	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	110	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	121	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	116	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	113	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	115	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	117	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	126	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	138	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	114	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	109	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	121	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	111	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	116	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	95	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	116	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	120	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	119	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	122	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	132	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	113	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	114	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	122	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	126	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	121	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	119	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	128	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	125	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	137	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.

[redacted]

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2332783**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASOMP_23	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2022AECOMAU0010_V2 (SY/198/22_V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 26-Sep-2023 08:30	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 03-Oct-2023	Scheduled Reporting Date	: **03-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 5.2'C
Receipt Detail	:	No. of samples received / analysed	: 27 / 27

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample 18 is a duplicate of Sample 11 with no extra bottles received. Sample 18 removed from SRN.**
- **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.**
- **QC Forward analysis will be conducted by NMI.**
- 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

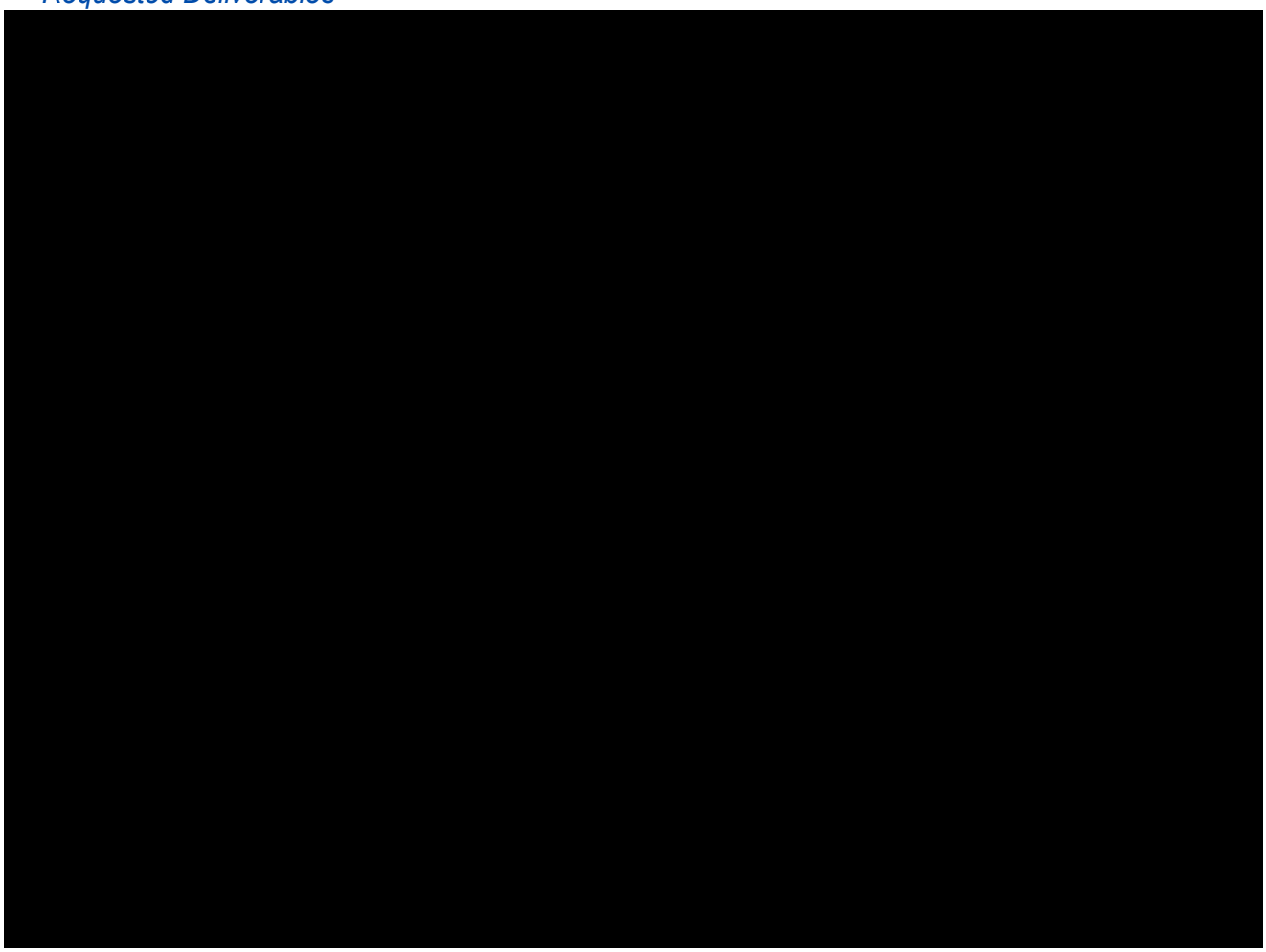
Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2332783-001	18-Sep-2023 00:00	0990_POT216_230918	✓
ES2332783-002	18-Sep-2023 00:00	0990_POT217_230918	✓
ES2332783-003	18-Sep-2023 00:00	0990_POT218_230918	✓
ES2332783-004	18-Sep-2023 00:00	0990_POT219_230918	✓
ES2332783-005	18-Sep-2023 00:00	0990_POT220_230918	✓
ES2332783-006	18-Sep-2023 00:00	0990_POT221_230918	✓
ES2332783-007	18-Sep-2023 00:00	0990_POT222_230918	✓
ES2332783-008	18-Sep-2023 00:00	0990_OTH120_230918	✓
ES2332783-009	18-Sep-2023 00:00	0990_QC100_230918	✓
ES2332783-010	18-Sep-2023 00:00	0990_OTH114_230918	✓
ES2332783-011	18-Sep-2023 00:00	0990_OTH113_230918	✓
ES2332783-012	18-Sep-2023 00:00	0990_OTH115_230918	✓
ES2332783-013	18-Sep-2023 00:00	0990_POT111_230918	✓
ES2332783-014	18-Sep-2023 00:00	0990_POT223_230920	✓
ES2332783-015	18-Sep-2023 00:00	0990_QC301_230920	✓
ES2332783-016	18-Sep-2023 00:00	0990_QC401_230920	✓
ES2332783-017	18-Sep-2023 00:00	0990_QC101_230918	✓
ES2332783-019	18-Sep-2023 00:00	0990_QC300_230918	✓
ES2332783-020	18-Sep-2023 00:00	0990_QC400_230918	✓
ES2332783-021	18-Sep-2023 00:00	0990_QC500_230918	✓
ES2332783-022	18-Sep-2023 00:00	0990_SW161_230918	✓
ES2332783-023	18-Sep-2023 00:00	0990_SW110_230918	✓
ES2332783-024	18-Sep-2023 00:00	0990_SW108_230918	✓
ES2332783-025	18-Sep-2023 00:00	0990_OTH008_230918	✓
ES2332783-026	18-Sep-2023 00:00	0990_SW100_230918	✓
ES2332783-027	18-Sep-2023 00:00	0990_SW153_230918	✓
ES2332783-028	18-Sep-2023 00:00	0990_QC102_230918	✓

Proactive Holding Time Report

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

Requested Deliverables



QUALITY CONTROL REPORT

Work Order	: **ES2332783**	Page	: 1 of 9
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	[redacted]
Address		Address	[redacted]
Telephone		Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 26-Sep-2023
Order number	: 60612561/3.1	Date Analysis Commenced	: 27-Sep-2023
C-O-C number	: ----	Issue Date	: 03-Oct-2023
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/198/22_V2		
No. of samples received	: 27		
No. of samples analysed	: 27		

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]		

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: 5323800)									
ES2332783-002	0990_POT217_230918	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
ES2332783-011	0990_OTH113_230918	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.09	0.09	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.10	0.10	0.0	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: 5324218)									
ES2332783-022	0990_SW161_230918	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: 5323800)									
ES2332783-002	0990_POT217_230918	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5323800) - continued									
ES2332783-002	0990_POT217_230918	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
ES2332783-011	0990_OTH113_230918	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: 5324218)									
ES2332783-022	0990_SW161_230918	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: 5323800)									
ES2332783-002	0990_POT217_230918	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: 5323800) - continued									
ES2332783-002	0990_POT217_230918	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
ES2332783-011	0990_OTH113_230918	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: 5324218)									
ES2332783-022	0990_SW161_230918	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: 5323800)									
ES2332783-002	0990_POT217_230918	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

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: 5323800) - continued									
ES2332783-011	0990_OTH113_230918	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: 5324218)									
ES2332783-022	0990_SW161_230918	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: 5323800)									
ES2332783-002	0990_POT217_230918	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
ES2332783-011	0990_OTH113_230918	EP231X: Sum of PFAS	----	0.01	µg/L	0.19	0.19	0.0	0% - 50%
EP231P: PFAS Sums (QC Lot: 5324218)									
ES2332783-022	0990_SW161_230918	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5323800)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	82.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	92.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	87.9	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	88.5	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	89.8	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5324218)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	89.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	111	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	107	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	107	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	99.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5323800)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	81.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	94.1	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	91.0	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	94.5	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	86.7	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.7	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	94.9	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5324218)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.9	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	97.5	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	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: 5324218) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	101	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	94.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	107	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	113	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	109	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	88.6	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5323800)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	77.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	79.7	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.4	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	75.6	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	95.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.8	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5324218)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	95.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	93.9	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	99.0	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	94.8	57.6	145
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	80.5	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5323800)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	93.9	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	84.5	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	106	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	96.1	71.4	144

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: 5324218)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	114	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	110	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	100	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	79.7	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5323800)							
ES2332783-008	0990_OTH120_230918	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	77.6	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	85.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	87.9	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	106	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	91.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	87.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5323800)							
ES2332783-008	0990_OTH120_230918	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	84.4	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	96.1	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.2	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	99.3	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	95.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	95.9	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	93.6	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	93.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	88.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	92.3	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5323800)							
ES2332783-008	0990_OTH120_230918	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	92.2	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	93.4	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	89.9	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	77.2	66.0	145

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: 5323800) - continued							
ES2332783-008	0990_OTH120_230918	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	88.0	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	89.5	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	84.5	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5323800)							
ES2332783-008	0990_OTH120_230918	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	85.7	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	108	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	78.1	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	79.1	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2332783**	Page	: 1 of 6
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 26-Sep-2023
Site	: ----	Issue Date	: 03-Oct-2023
Sampler	: [redacted]	No. of samples received	: 27
Order number	: 60612561/3.1	No. of samples analysed	: 27

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	
	1				
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	27	3.70	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)							
0990_POT216_230918, 0990_POT217_230918, 0990_POT218_230918, 0990_POT219_230918, 0990_POT220_230918, 0990_POT221_230918, 0990_POT222_230918, 0990_OTH120_230918, 0990_QC100_230918, 0990_OTH114_230918, 0990_OTH113_230918, 0990_OTH115_230918, 0990_POT111_230918, 0990_POT223_230920, 0990_QC301_230920, 0990_QC401_230920, 0990_QC101_230918, 0990_QC300_230918, 0990_QC400_230918, 0990_QC500_230918, 0990_SW161_230918, 0990_SW110_230918, 0990_SW108_230918, 0990_OTH008_230918, 0990_SW100_230918, 0990_SW153_230918, 0990_QC102_230918	**18-Sep-2023**	**29-Sep-2023**	16-Mar-2024	✓	**03-Oct-2023**	16-Mar-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0990_POT216_230918, 0990_POT217_230918, 0990_POT218_230918, 0990_POT219_230918, 0990_POT220_230918, 0990_POT221_230918, 0990_POT222_230918, 0990_OTH120_230918, 0990_QC100_230918, 0990_OTH114_230918, 0990_OTH113_230918, 0990_OTH115_230918, 0990_POT111_230918, 0990_POT223_230920, 0990_QC301_230920, 0990_QC401_230920, 0990_QC101_230918, 0990_QC300_230918, 0990_QC400_230918, 0990_QC500_230918, 0990_SW161_230918, 0990_SW110_230918, 0990_SW108_230918, 0990_OTH008_230918, 0990_SW100_230918, 0990_SW153_230918, 0990_QC102_230918	**18-Sep-2023**	**29-Sep-2023**	16-Mar-2024	✓	**03-Oct-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0990_POT216_230918, 0990_POT217_230918, 0990_POT218_230918, 0990_POT219_230918, 0990_POT220_230918, 0990_POT221_230918, 0990_POT222_230918, 0990_OTH120_230918, 0990_QC100_230918, 0990_OTH114_230918, 0990_OTH113_230918, 0990_OTH115_230918, 0990_POT111_230918, 0990_POT223_230920, 0990_QC301_230920, 0990_QC401_230920, 0990_QC101_230918, 0990_QC300_230918, 0990_QC400_230918, 0990_QC500_230918, 0990_SW161_230918, 0990_SW110_230918, 0990_SW108_230918, 0990_OTH008_230918, 0990_SW100_230918, 0990_SW153_230918, 0990_QC102_230918	**18-Sep-2023**	**29-Sep-2023**	16-Mar-2024	✓	**03-Oct-2023**	16-Mar-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0990_POT216_230918, 0990_POT217_230918, 0990_POT218_230918, 0990_POT219_230918, 0990_POT220_230918, 0990_POT221_230918, 0990_POT222_230918, 0990_OTH120_230918, 0990_QC100_230918, 0990_OTH114_230918, 0990_OTH113_230918, 0990_OTH115_230918, 0990_POT111_230918, 0990_POT223_230920, 0990_QC301_230920, 0990_QC401_230920, 0990_QC101_230918, 0990_QC300_230918, 0990_QC400_230918, 0990_QC500_230918, 0990_SW161_230918, 0990_SW110_230918, 0990_SW108_230918, 0990_OTH008_230918, 0990_SW100_230918, 0990_SW153_230918, 0990_QC102_230918	**18-Sep-2023**	**29-Sep-2023**	16-Mar-2024	✓	**03-Oct-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0990_POT216_230918, 0990_POT217_230918, 0990_POT218_230918, 0990_POT219_230918, 0990_POT220_230918, 0990_POT221_230918, 0990_POT222_230918, 0990_OTH120_230918, 0990_QC100_230918, 0990_OTH114_230918, 0990_OTH113_230918, 0990_OTH115_230918, 0990_POT111_230918, 0990_POT223_230920, 0990_QC301_230920, 0990_QC401_230920, 0990_QC101_230918, 0990_QC300_230918, 0990_QC400_230918, 0990_QC500_230918, 0990_SW161_230918, 0990_SW110_230918, 0990_SW108_230918, 0990_OTH008_230918, 0990_SW100_230918, 0990_SW153_230918, 0990_QC102_230918	**18-Sep-2023**	**29-Sep-2023**	16-Mar-2024	✓	**03-Oct-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	27	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	27	**3.70**	**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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2332783**	Page	: 1 of 15
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	: [redacted]
Address		Address	[redacted]
Telephone	: ----	Telephone	: +[redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 26-Sep-2023 08:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 27-Sep-2023
C-O-C number	: ----	Issue Date	: 03-Oct-2023 14:48
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/198/22_V2		
No. of samples received	: 27		
No. of samples analysed	: 27		

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]		

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	0990_POT216_230918	0990_POT217_230918	0990_POT218_230918	0990_POT219_230918	0990_POT220_230918
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
					ES2332783-001	ES2332783-002	ES2332783-003	ES2332783-004	ES2332783-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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: WATER (Matrix: WATER)				Sample ID	0990_POT216_230918	0990_POT217_230918	0990_POT218_230918	0990_POT219_230918	0990_POT220_230918
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332783-001	ES2332783-002	ES2332783-003	ES2332783-004	ES2332783-005
					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	<0.01	<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	%		**98.7**	**88.7**	**90.8**	**79.2**	**106**
13C8-PFOA	----	0.02	%		**106**	**91.2**	**95.4**	**96.1**	**96.8**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT221_230918	0990_POT222_230918	0990_OTH120_230918	0990_QC100_230918	0990_OTH114_230918
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
					ES2332783-006	ES2332783-007	ES2332783-008	ES2332783-009	ES2332783-010
					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	**0.11**
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	**0.19**
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	<0.1	<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	0990_POT221_230918	0990_POT222_230918	0990_OTH120_230918	0990_QC100_230918	0990_OTH114_230918
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332783-006	ES2332783-007	ES2332783-008	ES2332783-009	ES2332783-010
					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	<0.05
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	**0.32**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.30**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.30**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.1**	**95.9**	**91.2**	**103**	**95.4**
13C8-PFOA	----	0.02	%		**101**	**97.8**	**95.1**	**102**	**92.3**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_OTH113_230918	0990_OTH115_230918	0990_POT111_230918	0990_POT223_230920	0990_QC301_230920
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
					ES2332783-011	ES2332783-012	ES2332783-013	ES2332783-014	ES2332783-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.09**	**0.09**	<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		**0.10**	**0.13**	<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	0990_OTH113_230918	0990_OTH115_230918	0990_POT111_230918	0990_POT223_230920	0990_QC301_230920
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332783-011	ES2332783-012	ES2332783-013	ES2332783-014	ES2332783-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.19**	**0.22**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.19**	**0.22**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.19**	**0.22**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.0**	**108**	**99.0**	**90.2**	**93.7**
13C8-PFOA	----	0.02	%		**96.7**	**105**	**102**	**90.8**	**90.2**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC401_230920	0990_QC101_230918	0990_QC300_230918	0990_QC400_230918	0990_QC500_230918
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332783-016	ES2332783-017	ES2332783-019	ES2332783-020	ES2332783-021
					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	**0.09**	<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	**0.10**	<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	0990_QC401_230920	0990_QC101_230918	0990_QC300_230918	0990_QC400_230918	0990_QC500_230918
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332783-016	ES2332783-017	ES2332783-019	ES2332783-020	ES2332783-021
					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	**0.19**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.19**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.19**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.1**	**85.2**	**88.4**	**97.2**	**101**
13C8-PFOA	----	0.02	%		**96.8**	**95.2**	**104**	**93.5**	**102**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_SW161_230918	0990_SW110_230918	0990_SW108_230918	0990_OTH008_230918	0990_SW100_230918
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
					ES2332783-022	ES2332783-023	ES2332783-024	ES2332783-025	ES2332783-026
					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	**0.09**	**0.04**	**0.10**
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	**0.02**	**0.14**	**0.03**	**0.14**
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	0990_SW161_230918	0990_SW110_230918	0990_SW108_230918	0990_OTH008_230918	0990_SW100_230918
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00	18-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332783-022	ES2332783-023	ES2332783-024	ES2332783-025	ES2332783-026
					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	**0.02**	**0.25**	**0.07**	**0.26**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.02**	**0.23**	**0.07**	**0.24**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.02**	**0.23**	**0.07**	**0.24**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**107**	**98.8**	**101**	**97.1**	**97.0**
13C8-PFOA	----	0.02	%		**100**	**96.1**	**100**	**99.4**	**98.9**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW153_230918	0990_QC102_230918	----	----	----
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2332783-027	ES2332783-028	--------	--------	--------
					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		**0.02**	<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	0990_SW153_230918	0990_QC102_230918	----	----	----
				Sampling date / time	18-Sep-2023 00:00	18-Sep-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2332783-027	ES2332783-028	--------	--------	--------
					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		**0.02**	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**103**	**106**	----	----	----
13C8-PFOA	----	0.02	%		**93.2**	**102**	----	----	----

Surrogate Control Limits

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2333198**

Client	[redacted]	Laboratory	: [redacted]
Contact		Contact	:
Address		Address	:
E-mail		E-mail	:
Telephone		Telephone	:
Facsimile	: ----	Facsimile	:
Project	: NT_0990_PFASOMP_23	Page	: 1 of 4
Order number	: 60612561/3.1	Quote number	: ES2022AECOMAU0015 (NT_XXXX_PFASOMP)
C-O-C number	: 57498	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: 0990 OMP/PMAP		
Sampler	: [redacted]		

Dates

Date Samples Received	: 29-Sep-2023 08:30	Issue Date	: 29-Sep-2023
Client Requested Due Date	: 06-Oct-2023	Scheduled Reporting Date	: **06-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.4'C DRW 5.0'C 5.0'C 6.2'C SYD - Ice present
Receipt Detail	:	No. of samples received / analysed	: 32 / 32

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
- **QC forward analysis will be conducted by NMI.**
- **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.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2333198-007 : 26-Sep-2023 15:37 : 0990_MW231_9.0_230926
ES2333198-020 : 26-Sep-2023 15:38 : 0990_MW231_14.0_230926
ES2333198-021 : 26-Sep-2023 15:44 : 0990_MW231_22.0_230926

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)
ES2333198-001	25-Sep-2023 16:50	0990_MW104_230925	✓
ES2333198-002	27-Sep-2023 08:37	0990_MW107_2309	✓
ES2333198-003	27-Sep-2023 07:23	0990_MW110_230927	✓
ES2333198-004	27-Sep-2023 10:51	0990_MW118_230927	✓
ES2333198-005	26-Sep-2023 07:39	0990_MW127_230926	✓
ES2333198-006	26-Sep-2023 11:18	0990_MW129_230926	✓
ES2333198-007	26-Sep-2023 15:37	0990_MW231_9.0_230926	✓
ES2333198-008	26-Sep-2023 13:37	0990_MW244_230926	✓
ES2333198-009	26-Sep-2023 11:59	0990_MW278_230926	✓
ES2333198-010	26-Sep-2023 12:15	0990_MW285_230926	✓
ES2333198-011	27-Sep-2023 09:56	0990_MW403_230927	✓
ES2333198-012	25-Sep-2023 16:48	0990_QC310_230925	✓
ES2333198-013	25-Sep-2023 16:48	0990_QC410_230925	✓
ES2333198-014	25-Sep-2023 16:49	0990_QC510_230925	✓
ES2333198-015	25-Sep-2023 16:49	0990_QC100_230925	✓
ES2333198-017	26-Sep-2023 07:59	0990_QC300_230925	✓
ES2333198-018	26-Sep-2023 07:59	0990_QC400_230925	✓
ES2333198-019	26-Sep-2023 08:00	0990_QC500_230925	✓
ES2333198-020	26-Sep-2023 15:38	0990_MW231_14.0_2309...	✓
ES2333198-021	26-Sep-2023 15:44	0990_MW231_22.0_2309...	✓
ES2333198-022	26-Sep-2023 16:34	0990_QC311_230926	✓
ES2333198-023	26-Sep-2023 16:35	0990_QC411_230926	✓
ES2333198-024	26-Sep-2023 16:51	0990_QC301_230926	✓
ES2333198-025	26-Sep-2023 16:52	0990_QC401_220926	✓
ES2333198-026	27-Sep-2023 07:34	0990_QC102_230927	✓
ES2333198-028	27-Sep-2023 08:42	0990_QC101_230927	✓
ES2333198-030	27-Sep-2023 10:23	0990_QC312_230927	✓
ES2333198-031	27-Sep-2023 10:27	0990_QC412_230927	✓
ES2333198-032	27-Sep-2023 11:06	0990_QC511_230927	✓
ES2333198-033	27-Sep-2023 11:05	0990_QC103_230927	✓
ES2333198-035	27-Sep-2023 11:10	0990_QC302_230927	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
ES2333198-036	27-Sep-2023 11:11	0990_QC402_230927	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

QUALITY CONTROL REPORT

Work Order	: **ES2333198**	Page	: 1 of 10
Client	[redacted]	Laboratory	[redacted]
Contact		Contact	
Address		Address	
Telephone		Telephone	
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Sep-2023
Order number	: 60612561/3.1	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57498	Issue Date	: 09-Oct-2023
Sampler	: [redacted]		
Site	: 0990 OMP/PMAP		
Quote number	: NT_XXXX_PFASOMP		
No. of samples received	: 32		
No. of samples analysed	: 32		

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]		

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: 5333959)									
ES2333198-001	0990_MW104_230925	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	1.78	1.94	8.2	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	3.74	4.00	6.6	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.39	0.44	12.7	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.28	0.31	8.6	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.20	0.21	9.1	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2333198-004	0990_MW118_230927	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	1.18	1.07	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.87	1.95	4.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.16	0.15	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.16	0.14	10.3	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.09	0.08	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: 5333965)									
ES2333199-006	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.39	0.47	18.1	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.70	0.75	6.5	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.07	18.6	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.06	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.04	0.05	24.3	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: 5333959)									
ES2333198-001	0990_MW104_230925	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.24	0.27	14.2	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.21	0.23	10.7	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.82	0.90	9.6	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.10	0.12	12.0	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: 5333959) - continued									
ES2333198-001	0990_MW104_230925	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	0.3	0.0	No Limit
ES2333198-004	0990_MW118_230927	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.08	0.08	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	0.24	0.24	0.0	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.03	0.03	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: 5333965)									
ES2333199-006	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.03	0.09	91.5	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.15	0.18	18.4	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: 5333959)									
ES2333198-001	0990_MW104_230925	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: 5333959) - continued									
ES2333198-001	0990_MW104_230925	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
ES2333198-004	0990_MW118_230927	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: 5333965)									
ES2333199-006	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: 5333959)									
ES2333198-001	0990_MW104_230925	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

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: 5333959) - continued									
ES2333198-004	0990_MW118_230927	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: 5333965)									
ES2333199-006	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: 5333959)									
ES2333198-001	0990_MW104_230925	EP231X: Sum of PFAS	----	0.01	µg/L	7.96	8.72	9.1	0% - 20%
ES2333198-004	0990_MW118_230927	EP231X: Sum of PFAS	----	0.01	µg/L	3.86	3.79	1.8	0% - 20%
EP231P: PFAS Sums (QC Lot: 5333965)									
ES2333199-006	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	1.46	1.73	16.9	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: 5333959)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	89.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	88.0	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	90.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	93.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	89.4	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5333965)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	95.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	96.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	107	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	91.6	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5333959)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.4	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	97.7	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	100	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	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	98.8	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	89.3	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	112	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5333965)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	97.0	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	106	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	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: 5333965) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	111	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.3	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	112	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	108	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5333959)								
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	110	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.4	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	92.5	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5333965)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	108	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	122	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	120	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	105	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333959)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	87.3	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	108	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	93.0	71.4	144

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: 5333965)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	88.1	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	99.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	124	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	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.

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: 5333959)							
ES2333198-002	0990_MW107_2309	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	96.0	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	91.9	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	89.0	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	73.2	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	95.8	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5333965)							
ES2333199-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	94.8	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	79.8	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	87.1	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	87.0	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	109	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	81.6	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5333959)							
ES2333198-002	0990_MW107_2309	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	97.8	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	105	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	108	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	102	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	104	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	101	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	108	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	107	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	95.1	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	111	71.0	132

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5333965)							
ES2333199-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	98.8	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	104	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	106	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	104	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	107	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	108	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	107	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	87.4	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	112	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5333959)							
ES2333198-002	0990_MW107_2309	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	106	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	98.2	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	95.0	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	98.4	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	93.4	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5333965)							
ES2333199-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	103	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	104	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	96.4	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	106	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	93.6	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	100	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	97.3	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333959)							
ES2333198-002	0990_MW107_2309	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	96.8	63.0	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333959) - continued							
ES2333198-002	0990_MW107_2309	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	104	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	119	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	78.4	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333965)							
ES2333199-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	97.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	89.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	100	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	79.5	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2333198**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Sep-2023
Site	: 0990 OMP/PMAP	Issue Date	: 09-Oct-2023
Sampler	: [redacted]	No. of samples received	: 32
Order number	: 60612561/3.1	No. of samples analysed	: 32

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	
	3				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	3	38	7.89	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0990_MW104_230925, 0990_QC310_230925, 0990_QC410_230925, 0990_QC510_230925, 0990_QC100_230925	**25-Sep-2023**	**03-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0990_MW127_230926, 0990_MW129_230926, 0990_MW231_9.0_230926, 0990_MW244_230926, 0990_MW278_230926, 0990_MW285_230926, 0990_QC300_230925, 0990_QC400_230925, 0990_QC500_230925, 0990_MW231_14.0_230926, 0990_MW231_22.0_230926, 0990_QC311_230926, 0990_QC411_230926, 0990_QC301_230926, 0990_QC401_220926	**26-Sep-2023**	**03-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0990_MW107_2309, 0990_MW110_230927, 0990_MW118_230927, 0990_MW403_230927, 0990_QC102_230927, 0990_QC101_230927, 0990_QC312_230927, 0990_QC412_230927, 0990_QC511_230927, 0990_QC103_230927, 0990_QC302_230927, 0990_QC402_230927	**27-Sep-2023**	**03-Oct-2023**	25-Mar-2024	✓	**05-Oct-2023**	25-Mar-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0990_MW104_230925,	0990_QC310_230925,	**25-Sep-2023**	**03-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
0990_QC410_230925,	0990_QC510_230925,							
0990_QC100_230925								
HDPE (no PTFE) (EP231X)								
0990_MW127_230926,	0990_MW129_230926,	**26-Sep-2023**	**03-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓
0990_MW231_9.0_230926,	0990_MW244_230926,							
0990_MW278_230926,	0990_MW285_230926,							
0990_QC300_230925,	0990_QC400_230925,							
0990_QC500_230925,	0990_MW231_14.0_230926,							
0990_MW231_22.0_230926,	0990_QC311_230926,							
0990_QC411_230926,	0990_QC301_230926,							
0990_QC401_220926								
HDPE (no PTFE) (EP231X)								
0990_MW107_2309,	0990_MW110_230927,	**27-Sep-2023**	**03-Oct-2023**	25-Mar-2024	✓	**05-Oct-2023**	25-Mar-2024	✓
0990_MW118_230927,	0990_MW403_230927,							
0990_QC102_230927,	0990_QC101_230927,							
0990_QC312_230927,	0990_QC412_230927,							
0990_QC511_230927,	0990_QC103_230927,							
0990_QC302_230927,	0990_QC402_230927							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0990_MW104_230925,	0990_QC310_230925,	**25-Sep-2023**	**03-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
0990_QC410_230925,	0990_QC510_230925,							
0990_QC100_230925								
HDPE (no PTFE) (EP231X)								
0990_MW127_230926,	0990_MW129_230926,	**26-Sep-2023**	**03-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓
0990_MW231_9.0_230926,	0990_MW244_230926,							
0990_MW278_230926,	0990_MW285_230926,							
0990_QC300_230925,	0990_QC400_230925,							
0990_QC500_230925,	0990_MW231_14.0_230926,							
0990_MW231_22.0_230926,	0990_QC311_230926,							
0990_QC411_230926,	0990_QC301_230926,							
0990_QC401_220926								
HDPE (no PTFE) (EP231X)								
0990_MW107_2309,	0990_MW110_230927,	**27-Sep-2023**	**03-Oct-2023**	25-Mar-2024	✓	**05-Oct-2023**	25-Mar-2024	✓
0990_MW118_230927,	0990_MW403_230927,							
0990_QC102_230927,	0990_QC101_230927,							
0990_QC312_230927,	0990_QC412_230927,							
0990_QC511_230927,	0990_QC103_230927,							
0990_QC302_230927,	0990_QC402_230927							

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)								
0990_MW104_230925,	0990_QC310_230925,	**25-Sep-2023**	**03-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
0990_QC410_230925,	0990_QC510_230925,							
0990_QC100_230925								
HDPE (no PTFE) (EP231X)								
0990_MW127_230926,	0990_MW129_230926,	**26-Sep-2023**	**03-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓
0990_MW231_9.0_230926,	0990_MW244_230926,							
0990_MW278_230926,	0990_MW285_230926,							
0990_QC300_230925,	0990_QC400_230925,							
0990_QC500_230925,	0990_MW231_14.0_230926,							
0990_MW231_22.0_230926,	0990_QC311_230926,							
0990_QC411_230926,	0990_QC301_230926,							
0990_QC401_220926								
HDPE (no PTFE) (EP231X)								
0990_MW107_2309,	0990_MW110_230927,	**27-Sep-2023**	**03-Oct-2023**	25-Mar-2024	✓	**05-Oct-2023**	25-Mar-2024	✓
0990_MW118_230927,	0990_MW403_230927,							
0990_QC102_230927,	0990_QC101_230927,							
0990_QC312_230927,	0990_QC412_230927,							
0990_QC511_230927,	0990_QC103_230927,							
0990_QC302_230927,	0990_QC402_230927							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0990_MW104_230925,	0990_QC310_230925,	**25-Sep-2023**	**03-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
0990_QC410_230925,	0990_QC510_230925,							
0990_QC100_230925								
HDPE (no PTFE) (EP231X)								
0990_MW127_230926,	0990_MW129_230926,	**26-Sep-2023**	**03-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓
0990_MW231_9.0_230926,	0990_MW244_230926,							
0990_MW278_230926,	0990_MW285_230926,							
0990_QC300_230925,	0990_QC400_230925,							
0990_QC500_230925,	0990_MW231_14.0_230926,							
0990_MW231_22.0_230926,	0990_QC311_230926,							
0990_QC411_230926,	0990_QC301_230926,							
0990_QC401_220926								
HDPE (no PTFE) (EP231X)								
0990_MW107_2309,	0990_MW110_230927,	**27-Sep-2023**	**03-Oct-2023**	25-Mar-2024	✓	**05-Oct-2023**	25-Mar-2024	✓
0990_MW118_230927,	0990_MW403_230927,							
0990_QC102_230927,	0990_QC101_230927,							
0990_QC312_230927,	0990_QC412_230927,							
0990_QC511_230927,	0990_QC103_230927,							
0990_QC302_230927,	0990_QC402_230927							

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	3	38	**7.89**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2333198**	Page	: 1 of 17
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	[redacted]
Address	: [redacted]	Address	[redacted]
Telephone	: [redacted]	Telephone	[redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Sep-2023 08:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57498	Issue Date	: 09-Oct-2023 07:47
Sampler	: [redacted]		
Site	: 0990 OMP/PMAP		
Quote number	: NT_XXXX_PFASOMP		
No. of samples received	: 32		
No. of samples analysed	: 32		

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]		

General Comments

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

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

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

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

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

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

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

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Surrogates diluted out of analytical range, therefore % recoveries could not be determined.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0990_QC300_230925	0990_QC301_230926	0990_QC302_230927	----	----
				Sampling date / time	26-Sep-2023 07:59	26-Sep-2023 16:51	27-Sep-2023 11:10	----	----
Compound	CAS Number	LOR	Unit		ES2333198-017	ES2333198-024	ES2333198-035	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0990_QC300_230925	0990_QC301_230926	0990_QC302_230927	----	----
				Sampling date / time	26-Sep-2023 07:59	26-Sep-2023 16:51	27-Sep-2023 11:10	----	----
Compound	CAS Number	LOR	Unit		ES2333198-017	ES2333198-024	ES2333198-035	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**104**	**99.2**	----	----
13C8-PFOA	----	0.02	%		**102**	**102**	**103**	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_MW104_230925	0990_MW107_2309	0990_MW110_230927	0990_MW118_230927	0990_MW127_230926
				Sampling date / time	25-Sep-2023 16:50	27-Sep-2023 08:37	27-Sep-2023 07:23	27-Sep-2023 10:51	26-Sep-2023 07:39
					ES2333198-001	ES2333198-002	ES2333198-003	ES2333198-004	ES2333198-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.39**	**0.03**	**0.24**	**0.16**	**0.13**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.28**	**0.02**	**0.21**	**0.16**	**0.12**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.78**	**0.23**	**1.68**	**1.18**	**1.00**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.20**	<0.02	**0.13**	**0.09**	**0.07**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**3.74**	**0.58**	**2.98**	**1.87**	**2.71**
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	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.21**	<0.02	**0.09**	**0.05**	**0.08**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.82**	**0.03**	**0.42**	**0.24**	**0.28**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.10**	<0.02	**0.06**	**0.03**	**0.04**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.24**	**0.02**	**0.14**	**0.08**	**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	<0.05	<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	0990_MW104_230925	0990_MW107_2309	0990_MW110_230927	0990_MW118_230927	0990_MW127_230926
				Sampling date / time	25-Sep-2023 16:50	27-Sep-2023 08:37	27-Sep-2023 07:23	27-Sep-2023 10:51	26-Sep-2023 07:39
Compound	CAS Number	LOR	Unit		ES2333198-001	ES2333198-002	ES2333198-003	ES2333198-004	ES2333198-005
					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		**7.96**	**0.91**	**5.95**	**3.86**	**4.52**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**5.52**	**0.81**	**4.66**	**3.05**	**3.71**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**7.48**	**0.89**	**5.61**	**3.61**	**4.33**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**108**	**101**	**105**	**103**	**104**
13C8-PFOA	----	0.02	%		**97.9**	**99.1**	**101**	**100**	**99.9**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_MW129_230926	0990_MW231_9.0_230926	0990_MW244_230926	0990_MW278_230926	0990_MW285_230926
				Sampling date / time	26-Sep-2023 11:18	26-Sep-2023 15:37	26-Sep-2023 13:37	26-Sep-2023 11:59	26-Sep-2023 12:15
Compound	CAS Number	LOR	Unit		ES2333198-006	ES2333198-007	ES2333198-008	ES2333198-009	ES2333198-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**6.58**	**495**	**0.53**	**0.67**	**0.03**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**6.34**	**416**	**0.64**	**0.62**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**35.6**	**2370**	**3.98**	**6.62**	**0.23**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**3.96**	**351**	**0.53**	**0.39**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**88.0**	**1860**	**11.3**	**7.14**	**0.42**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.05	<0.50	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**2.9**	**227**	**0.5**	**0.1**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**5.52**	**444**	**1.37**	**0.18**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**16.6**	**1910**	**1.88**	**0.88**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**3.39**	**329**	**0.98**	**0.10**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**5.37**	**568**	**0.76**	**0.30**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.06**	**14.8**	**0.03**	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.05	<0.50	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.05	<0.50	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.05	<0.50	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.05	<0.50	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.12	<1.25	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.05	<0.50	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.12	<1.25	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.12	<1.25	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_MW129_230926	0990_MW231_9.0_230926	0990_MW244_230926	0990_MW278_230926	0990_MW285_230926
				Sampling date / time	26-Sep-2023 11:18	26-Sep-2023 15:37	26-Sep-2023 13:37	26-Sep-2023 11:59	26-Sep-2023 12:15
Compound	CAS Number	LOR	Unit		ES2333198-006	ES2333198-007	ES2333198-008	ES2333198-009	ES2333198-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.12	<1.25	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.12	<1.25	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.05	<0.50	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.05	<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		**0.28**	**64.8**	**2.61**	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	**8.68**	<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		**175**	**9060**	**25.1**	**17.0**	**0.68**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**124**	**4230**	**15.3**	**13.8**	**0.65**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**164**	**8280**	**23.9**	**16.0**	**0.68**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.6**	**Not Determined**	**103**	**101**	**103**
13C8-PFOA	----	0.02	%		**97.0**	**Not Determined**	**101**	**96.9**	**97.6**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_MW403_230927	0990_QC310_230925	0990_QC410_230925	0990_QC510_230925	0990_QC100_230925
				Sampling date / time	27-Sep-2023 09:56	25-Sep-2023 16:48	25-Sep-2023 16:48	25-Sep-2023 16:49	25-Sep-2023 16:49
Compound	CAS Number	LOR	Unit		ES2333198-011	ES2333198-012	ES2333198-013	ES2333198-014	ES2333198-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.36**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.27**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**1.70**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.19**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**3.11**
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	<0.1	<0.1	**0.3**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.21**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.85**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.10**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.22**
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	0990_MW403_230927	0990_QC310_230925	0990_QC410_230925	0990_QC510_230925	0990_QC100_230925
				Sampling date / time	27-Sep-2023 09:56	25-Sep-2023 16:48	25-Sep-2023 16:48	25-Sep-2023 16:49	25-Sep-2023 16:49
Compound	CAS Number	LOR	Unit		ES2333198-011	ES2333198-012	ES2333198-013	ES2333198-014	ES2333198-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**7.31**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**4.81**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**6.85**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	**99.6**	**99.0**	**100**	**97.5**
13C8-PFOA	----	0.02	%		**99.7**	**99.6**	**99.3**	**98.8**	**98.6**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_QC400_230925	0990_QC500_230925	0990_MW231_14.0_230926	0990_MW231_22.0_230926	0990_QC311_230926
				Sampling date / time	26-Sep-2023 07:59	26-Sep-2023 08:00	26-Sep-2023 15:38	26-Sep-2023 15:44	26-Sep-2023 16:34
					ES2333198-018	ES2333198-019	ES2333198-020	ES2333198-021	ES2333198-022
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**490**	**501**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**371**	**428**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**2300**	**2340**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**320**	**361**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**1760**	**1830**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.50	<0.50	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	**216**	**225**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**434**	**441**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**1840**	**1970**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**306**	**321**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**552**	**567**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	**14.5**	**15.0**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.50	<0.50	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.50	<0.50	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.50	<0.50	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.50	<0.50	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<1.25	<1.25	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.50	<0.50	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<1.25	<1.25	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<1.25	<1.25	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC400_230925	0990_QC500_230925	0990_MW231_14.0_230926	0990_MW231_22.0_230926	0990_QC311_230926
				Sampling date / time	26-Sep-2023 07:59	26-Sep-2023 08:00	26-Sep-2023 15:38	26-Sep-2023 15:44	26-Sep-2023 16:34
Compound	CAS Number	LOR	Unit		ES2333198-018	ES2333198-019	ES2333198-020	ES2333198-021	ES2333198-022
					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	<1.25	<1.25	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<1.25	<1.25	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.50	<0.50	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.50	<0.50	<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	<0.50	<0.50	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	**60.4**	**64.7**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	**8.30**	**11.3**	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.50	<0.50	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	**8670**	**9080**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**4060**	**4170**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**7970**	**8270**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**101**	**Not Determined**	**Not Determined**	**102**
13C8-PFOA	----	0.02	%		**105**	**99.2**	**Not Determined**	**Not Determined**	**98.5**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC411_230926	0990_QC401_220926	0990_QC102_230927	0990_QC101_230927	0990_QC312_230927
				Sampling date / time	26-Sep-2023 16:35	26-Sep-2023 16:52	27-Sep-2023 07:34	27-Sep-2023 08:42	27-Sep-2023 10:23
Compound	CAS Number	LOR	Unit		ES2333198-023	ES2333198-025	ES2333198-026	ES2333198-028	ES2333198-030
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.21**	**0.03**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.19**	**0.02**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**1.59**	**0.25**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.13**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**3.41**	**0.57**	<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	**0.08**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**0.37**	**0.04**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.05**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**0.14**	**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: WATER (Matrix: WATER)				Sample ID	0990_QC411_230926	0990_QC401_220926	0990_QC102_230927	0990_QC101_230927	0990_QC312_230927
				Sampling date / time	26-Sep-2023 16:35	26-Sep-2023 16:52	27-Sep-2023 07:34	27-Sep-2023 08:42	27-Sep-2023 10:23
Compound	CAS Number	LOR	Unit		ES2333198-023	ES2333198-025	ES2333198-026	ES2333198-028	ES2333198-030
					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	<0.05	<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	**6.17**	**0.93**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**5.00**	**0.82**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**5.85**	**0.91**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.3**	**102**	**99.4**	**97.5**	**98.1**
13C8-PFOA	----	0.02	%		**98.7**	**99.6**	**100**	**102**	**101**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC412_230927	0990_QC511_230927	0990_QC103_230927	0990_QC402_230927	----
				Sampling date / time	27-Sep-2023 10:27	27-Sep-2023 11:06	27-Sep-2023 11:05	27-Sep-2023 11:11	----
Compound	CAS Number	LOR	Unit		ES2333198-031	ES2333198-032	ES2333198-033	ES2333198-036	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.14**	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.13**	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**1.00**	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.07**	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**1.60**	<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		<0.02	<0.02	**0.04**	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**0.21**	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.03**	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**0.07**	<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	0990_QC412_230927	0990_QC511_230927	0990_QC103_230927	0990_QC402_230927	----
				Sampling date / time	27-Sep-2023 10:27	27-Sep-2023 11:06	27-Sep-2023 11:05	27-Sep-2023 11:11	----
Compound	CAS Number	LOR	Unit		ES2333198-031	ES2333198-032	ES2333198-033	ES2333198-036	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	**3.29**	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**2.60**	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**3.09**	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.3**	**103**	**100**	**102**	----
13C8-PFOA	----	0.02	%		**106**	**100.0**	**100**	**105**	----

Surrogate Control Limits

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

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2333200**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	[redacted]
Address	:	Address	
E-mail	:	E-mail	
Telephone	:	Telephone	
Facsimile	: ----	Facsimile	
Project	: NT_0990_PFASOMP_23	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2022AECOMAU0015 (NT_XXXX_PFASOMP)
C-O-C number	: 57794	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: 0990 PFASOMP		
Sampler	: [redacted]		

Dates

Date Samples Received	: 29-Sep-2023 08:30	Issue Date	: 29-Sep-2023
Client Requested Due Date	: 06-Oct-2023	Scheduled Reporting Date	: **06-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 6.4'C DRW 5.0'C 5.0'C 6.2'C SYD - Ice present
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

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)
ES2333200-001	25-Sep-2023 13:25	0990_MW135_230925	✓
ES2333200-002	25-Sep-2023 12:44	0990_MW732_230925	✓
ES2333200-003	25-Sep-2023 12:45	0990_MW137_2309	✓
ES2333200-004	25-Sep-2023 11:03	0990_OTH116_230925	✓
ES2333200-005	25-Sep-2023 12:19	0990_MW140_230922	✓
ES2333200-006	25-Sep-2023 11:59	0990_MW142_230925	✓
ES2333200-007	25-Sep-2023 11:27	0990_MW144_230922	✓
ES2333200-008	25-Sep-2023 11:57	0990_MW400_230925	✓
ES2333200-009	26-Sep-2023 14:24	0990_OTH111_230926	✓
ES2333200-010	26-Sep-2023 14:45	0990_OTH112_230926	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

QUALITY CONTROL REPORT

Work Order	: **ES2333200**	Page	: 1 of 4
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	[redacted]
Address		Address	
Telephone		Telephone	
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Sep-2023
Order number	: 60612561/3.1	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57794	Issue Date	: 09-Oct-2023
Sampler	: [redacted]		
Site	: 0990 PFASOMP		
Quote number	: NT_XXXX_PFASOMP		
No. of samples received	: 10		
No. of samples analysed	: 10		

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]		

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: 5335194)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	91.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	92.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	82.9	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	95.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	91.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5335194)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	79.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	92.7	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	87.2	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	86.0	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.5	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	99.5	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	95.9	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	92.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5335194)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	111	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	88.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	80.2	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	89.9	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	92.0	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	75.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.3	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5335194)								

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: 5335194) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	79.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	81.7	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	87.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	111	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.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2333200**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Sep-2023
Site	: 0990 PFASOMP	Issue Date	: 09-Oct-2023
Sampler	: [redacted]	No. of samples received	: 10
Order number	: 60612561/3.1	No. of samples analysed	: 10

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
	0				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	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***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0990_MW135_230925, 0990_MW732_230925, 0990_MW137_2309, 0990_OTH116_230925, 0990_MW140_230922, 0990_MW142_230925, 0990_MW144_230922, 0990_MW400_230925	**25-Sep-2023**	**04-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH111_230926, 0990_OTH112_230926	**26-Sep-2023**	**04-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0990_MW135_230925, 0990_MW732_230925, 0990_MW137_2309, 0990_OTH116_230925, 0990_MW140_230922, 0990_MW142_230925, 0990_MW144_230922, 0990_MW400_230925	**25-Sep-2023**	**04-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH111_230926, 0990_OTH112_230926	**26-Sep-2023**	**04-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0990_MW135_230925, 0990_MW137_2309, 0990_MW140_230922, 0990_MW144_230922, 0990_MW732_230925, 0990_OTH116_230925, 0990_MW142_230925, 0990_MW400_230925	**25-Sep-2023**	**04-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH111_230926, 0990_OTH112_230926	**26-Sep-2023**	**04-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0990_MW135_230925, 0990_MW137_2309, 0990_MW140_230922, 0990_MW144_230922, 0990_MW732_230925, 0990_OTH116_230925, 0990_MW142_230925, 0990_MW400_230925	**25-Sep-2023**	**04-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH111_230926, 0990_OTH112_230926	**26-Sep-2023**	**04-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0990_MW135_230925, 0990_MW137_2309, 0990_MW140_230922, 0990_MW144_230922, 0990_MW732_230925, 0990_OTH116_230925, 0990_MW142_230925, 0990_MW400_230925	**25-Sep-2023**	**04-Oct-2023**	23-Mar-2024	✓	**05-Oct-2023**	23-Mar-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH111_230926, 0990_OTH112_230926	**26-Sep-2023**	**04-Oct-2023**	24-Mar-2024	✓	**05-Oct-2023**	24-Mar-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2333200**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	[redacted]
Address		Address	
Telephone		Telephone	
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 29-Sep-2023 08:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57794	Issue Date	: 09-Oct-2023 07:56
Sampler	: [redacted]		
Site	: 0990 PFASOMP		
Quote number	: NT_XXXX_PFASOMP		
No. of samples received	: 10		
No. of samples analysed	: 10		

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]		

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	0990_MW135_230925	0990_MW732_230925	0990_MW137_2309	0990_OTH116_230925	0990_MW140_230922
				Sampling date / time	25-Sep-2023 13:25	25-Sep-2023 12:44	25-Sep-2023 12:45	25-Sep-2023 11:03	25-Sep-2023 12:19
					ES2333200-001	ES2333200-002	ES2333200-003	ES2333200-004	ES2333200-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.03**	**0.03**	**0.07**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.03**	**0.03**	**0.09**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.05**	**0.16**	**0.15**	**0.44**	**0.08**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	**0.03**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.06**	**0.30**	**0.19**	**0.67**	**0.15**
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**	**0.03**	<0.02	**0.06**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	**0.02**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_MW135_230925	0990_MW732_230925	0990_MW137_2309	0990_OTH116_230925	0990_MW140_230922
				Sampling date / time	25-Sep-2023 13:25	25-Sep-2023 12:44	25-Sep-2023 12:45	25-Sep-2023 11:03	25-Sep-2023 12:19
Compound	CAS Number	LOR	Unit		ES2333200-001	ES2333200-002	ES2333200-003	ES2333200-004	ES2333200-005
					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		**0.13**	**0.55**	**0.40**	**1.38**	**0.23**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.11**	**0.46**	**0.34**	**1.11**	**0.23**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.13**	**0.52**	**0.37**	**1.26**	**0.23**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.6**	**96.0**	**91.0**	**96.8**	**97.9**
13C8-PFOA	----	0.02	%		**95.0**	**96.4**	**102**	**102**	**108**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_MW142_230925	0990_MW144_230922	0990_MW400_230925	0990_OTH111_230926	0990_OTH112_230926
				Sampling date / time	25-Sep-2023 11:59	25-Sep-2023 11:27	25-Sep-2023 11:57	26-Sep-2023 14:24	26-Sep-2023 14:45
					ES2333200-006	ES2333200-007	ES2333200-008	ES2333200-009	ES2333200-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.12**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.12**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	<0.01	**0.52**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.04**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.03**	<0.01	**1.24**	**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	**0.11**	<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	**0.04**	<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	0990_MW142_230925	0990_MW144_230922	0990_MW400_230925	0990_OTH111_230926	0990_OTH112_230926
				Sampling date / time	25-Sep-2023 11:59	25-Sep-2023 11:27	25-Sep-2023 11:57	26-Sep-2023 14:24	26-Sep-2023 14:45
Compound	CAS Number	LOR	Unit		ES2333200-006	ES2333200-007	ES2333200-008	ES2333200-009	ES2333200-010
					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	**1.79**	<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		**0.05**	<0.01	**4.02**	**0.01**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.05**	<0.01	**1.76**	**0.01**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.05**	<0.01	**3.86**	**0.01**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.4**	**94.2**	**107**	**97.6**	**97.9**
13C8-PFOA	----	0.02	%		**110**	**109**	**98.4**	**109**	**106**

Surrogate Control Limits

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

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: Client Services

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

SAMPLE DETAILS

NMI Job Name: AECO06/230927

Total No. of Samples: 3

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N23/019823	5-OCT-2023	0990_QC200_230918	WATER 18/09/2023
N23/019824	5-OCT-2023	0990_QC201_230918	WATER 18/09/2023

[redacted]

SAMPLE RECEIVED CONDITION

Date samples received:	27-SEP-2023
Sample received in good order:	Yes
NMI Quotation no. provided:	NT_0990_PFASOMP
Client purchase order number:	60612561_3_1
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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. RN1407025

Client	[redacted]	**Job No.**	: AECO06/230927
		Quote No.	: QT-02232
		Order No.	: 60612561_3_1
		Date Received	: 27-SEP-2023
Attention		**Sampled By**	: CLIENT
Project Name : NT_0990_PFASOMP			
Your Client Services Manager : [redacted]		**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/019823	0990_QC200_230918	WATER 18/09/2023
N23/019824	0990_QC201_230918	WATER 18/09/2023
N23/019825	0990_QC102_230918	WATER 18/09/2023

Lab Reg No.		N23/019823	N23/019824	N23/019825		
Date Sampled		18-SEP-2023	18-SEP-2023	18-SEP-2023		
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	<0.05	<0.05		NR70
PFPeA (2706-90-3)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxA (307-24-4)	ug/L	<0.01	<0.01	<0.01		NR70
PFHpA (375-85-9)	ug/L	<0.01	<0.01	<0.01		NR70
PFOA (335-67-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFNA (375-95-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02	<0.02		NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02	<0.02		NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05	<0.05		NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01	<0.01		NR70
PFPeS (2706-91-4)	ug/L	<0.01	0.011	<0.01		NR70
PFHxS (355-46-4)	ug/L	<0.01	0.12	<0.01		NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFOS (1763-23-1)	ug/L	<0.02	0.080	<0.02		NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFBS (375-73-5)	ug/L	<0.01	0.016	<0.01		NR70
PFOSA (754-91-6)	ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02	<0.05		NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02	<0.05		NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01	<0.01		NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05	<0.1		NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05	<0.1		NR70

REPORT OF ANALYSIS

Report No. RN1407025

Lab Reg No.	Units	N23/019823	N23/019824	N23/019825		Method
Date Sampled		18-SEP-2023	18-SEP-2023	18-SEP-2023		
PFAS (per-and poly-fluoroalkyl substances)						
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01	<0.01		NR70
6:2 FTS (27619-97-2)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	<0.01	<0.01		NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02	<0.02		NR70
PFBA (Surrogate Recovery)	%	82	79	83		NR70
PFPeA (Surrogate Recovery)	%	76	77	81		NR70
PFHxA (Surrogate Recovery)	%	87	83	86		NR70
PFHpA (Surrogate Recovery)	%	84	83	84		NR70
PFOA (Surrogate Recovery)	%	80	86	83		NR70
PFNA (Surrogate Recovery)	%	64	69	72		NR70
PFDA (Surrogate Recovery)	%	69	74	67		NR70
PFUdA (Surrogate Recovery)	%	72	73	51		NR70
PFDoA (Surrogate Recovery)	%	68	67	35		NR70
PFTeDA (Surrogate Recovery)	%	65	69	39		NR70
PFHxDA (Surrogate Recovery)	%	83	79	58		NR70
FOUEA (Surrogate Recovery)	%	71	72	47		NR70
PFBS (Surrogate Recovery)	%	92	91	92		NR70
PFHxS (Surrogate Recovery)	%	82	81	83		NR70
PFOS (Surrogate Recovery)	%	75	72	73		NR70
PFOSA (Surrogate Recovery)	%	56	63	35		NR70
N-MeFOSA (Surrogate Recovery)	%	51	47	17		NR70
N-EtFOSA (Surrogate Recovery)	%	59	58	17		NR70
N-MeFOSAA (Surrogate Recovery)	%	61	60	22		NR70
N-EtFOSAA (Surrogate Recovery)	%	71	67	22		NR70
N-MeFOSE (Surrogate Recovery)	%	58	57	17		NR70
N-EtFOSE (Surrogate Recovery)	%	64	64	17		NR70
4:2 FTS (Surrogate Recovery)	%	65	64	74		NR70
6:2 FTS (Surrogate Recovery)	%	61	63	64		NR70
8:2 FTS (Surrogate Recovery)	%	48	61	59		NR70
8:2 diPAP (Surrogate Recovery)	%	64	57	52		NR70
Dates						
Date extracted		3-OCT-2023	3-OCT-2023	3-OCT-2023		
Date analysed		3-OCT-2023	3-OCT-2023	3-OCT-2023		

N23/019823
to
N23/019825

[redacted]

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.

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.
LOR raised for analytes with surrogate recoveries <20%.

[redacted]

NATA
WORLD RECOGNISED ACCREDITATION

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: *RN1407010*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/230927 **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	139	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	117	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	128	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	118	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	111	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	127	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	117	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	121	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	128	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	121	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	147	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	113	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	117	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	126	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	129	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	116	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	126	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	117	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	113	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	116	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	118	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	120	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	150	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	127	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	118	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	112	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	132	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	112	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	123	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	126	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	100	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	99	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	117	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 and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM SERVICES PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: Client Services

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

SAMPLE DETAILS

NMI Job Name: AECO09/231004/1

Total No. of Samples: 6

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N23/020366	11-OCT-2023	0990_QC215_230926	WATER 26/09/2023 08:56 AM
N23/020367	11-OCT-2023	0990_QC211_230926	WATER 26/09/2023 09:21 AM

N23/020368	11-OCT-2023	0990_QC214_230926	WATER 26/09/2023 10:40 AM
N23/020369	11-OCT-2023	0990_QC212_230926	WATER 26/09/2023 04:52 PM
N23/020370	11-OCT-2023	0990_QC216_230927	WATER 27/09/2023 08:53 AM
N23/020371	11-OCT-2023	0990_QC213_230927	WATER 27/09/2023 09:35 AM

SAMPLE RECEIVED CONDITION

Date samples received:	4-OCT-2023
Sample received in good order:	Yes
NMI Quotation no. provided:	
Client purchase order number:	60676801_3_04_02
Temperature of samples:	Chilled
Comments:	ALL OK
Mode of Delivery:	

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.

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REPORT OF ANALYSIS

Report No. RN1407865

Client	[redacted]	**Job No.**	: AECO09/231004
		Quote No.	: QT-02232
		Order No.	: 60612561_3_1
		Date Received	: 04-OCT-2023
Attention		**Sampled By**	: CLIENT
Project Name : NT_0990_PFASOMP_23			
Your Client Services Manager : [redacted]		**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/020362	0990_QC200_230925	WATER 25/09/2023 05:20 PM
N23/020363	0990_QC202_230927	WATER 27/09/2023 08:05 AM
N23/020364	0990_QC201_230927	WATER 27/09/2023 09:14 AM
N23/020365	0990_QC203_230927	WATER 27/09/2023 11:37 AM

Lab Reg No.		N23/020362	N23/020363	N23/020364	N23/020365	
Date Sampled		25-SEP-2023	27-SEP-2023	27-SEP-2023	27-SEP-2023	
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	0.38	0.086	0.072	0.065	NR70
PFPeA (2706-90-3)	ug/L	0.22	0.090	<0.02	0.047	NR70
PFHxA (307-24-4)	ug/L	0.76	0.38	0.036	0.23	NR70
PFHpA (375-85-9)	ug/L	0.11	0.051	<0.01	0.027	NR70
PFOA (335-67-1)	ug/L	0.21	0.11	0.013	0.066	NR70
PFNA (375-95-1)	ug/L	<0.01	<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	0.28	0.22	0.031	0.16	NR70
PFHxS (355-46-4)	ug/L	1.2	1.1	0.34	1.3	NR70
PFHpS (375-92-8)	ug/L	0.17	0.10	0.013	0.061	NR70
PFOS (1763-23-1)	ug/L	2.1	2.1	0.65	2.0	NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01	<0.01	NR70
PFBS (375-73-5)	ug/L	0.43	0.26	0.039	0.18	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	<0.05	<0.02	NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02	<0.05	<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.		N23/020362	N23/020363	N23/020364	N23/020365	
Date Sampled		25-SEP-2023	27-SEP-2023	27-SEP-2023	27-SEP-2023	
	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	<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)	%	61	66	59	64	NR70
PFPeA (Surrogate Recovery)	%	59	64	54	61	NR70
PFHxA (Surrogate Recovery)	%	65	72	62	63	NR70
PFHpA (Surrogate Recovery)	%	63	66	64	63	NR70
PFOA (Surrogate Recovery)	%	62	69	67	62	NR70
PFNA (Surrogate Recovery)	%	59	58	50	56	NR70
PFDA (Surrogate Recovery)	%	61	59	47	56	NR70
PFUdA (Surrogate Recovery)	%	64	60	39	56	NR70
PFDoA (Surrogate Recovery)	%	62	58	35	61	NR70
PFTeDA (Surrogate Recovery)	%	59	55	31	57	NR70
PFHxDA (Surrogate Recovery)	%	72	72	54	75	NR70
FOUEA (Surrogate Recovery)	%	51	57	52	58	NR70
PFBS (Surrogate Recovery)	%	74	80	78	70	NR70
PFHxS (Surrogate Recovery)	%	73	76	74	72	NR70
PFOS (Surrogate Recovery)	%	62	63	55	68	NR70
PFOSA (Surrogate Recovery)	%	54	55	26	50	NR70
N-MeFOSA (Surrogate Recovery)	%	31	38	16	37	NR70
N-EtFOSA (Surrogate Recovery)	%	38	48	18	41	NR70
N-MeFOSAA (Surrogate Recovery)	%	55	60	27	55	NR70
N-EtFOSAA (Surrogate Recovery)	%	65	60	26	57	NR70
N-MeFOSE (Surrogate Recovery)	%	45	50	20	46	NR70
N-EtFOSE (Surrogate Recovery)	%	47	53	22	51	NR70
4:2 FTS (Surrogate Recovery)	%	61	61	76	61	NR70
6:2 FTS (Surrogate Recovery)	%	43	46	49	47	NR70
8:2 FTS (Surrogate Recovery)	%	48	53	46	48	NR70
8:2 diPAP (Surrogate Recovery)	%	71	65	43	70	NR70
Dates						
Date extracted		6-OCT-2023	6-OCT-2023	6-OCT-2023	6-OCT-2023	
Date analysed		9-OCT-2023	9-OCT-2023	9-OCT-2023	9-OCT-2023	

N23/020362
to
N23/020365

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.

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.
LOR raised for analytes with surrogate recoveries <20%.

[redacted]

NATA
WORLD RECOGNISED
ACCREDITATION

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: *RN1407621* *RN1407842*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO09/231004 **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	119	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	120	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	121	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	113	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	121	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	116	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	130	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	121	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	115	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	114	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	108	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	111	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	109	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	118	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	116	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	115	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	110	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	103	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	116	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	114	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	120	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	144	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	123	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	122	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	120	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	122	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	118	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	125	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	121	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	133	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	107	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	121	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]

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2337465**		
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	: [redacted]
Address		Address	:
E-mail		E-mail	:
Telephone	: ----	Telephone	:
Facsimile	: ----	Facsimile	:
Project	: NT_0990_PFASOMP_23	Page	: 1 of 7
Order number	: ----	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 31-Oct-2023 09:41	Issue Date	: 06-Nov-2023
Client Requested Due Date	: 04-Dec-2023	Scheduled Reporting Date	: **04-Dec-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 4	Temperature	: 1.4, 8.9, 5.8'C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 57 / 57

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
- This is an updated SRN which indicates corrected project name.
- **Samples QC201, QC202, QC203, QC204 and QC205 have been forwarded to NMI.**
- **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.

Method / Sample ID	Sample Container Received	Preferred Sample Container for Analysis
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS : EP231X		
0990_BIOAFA441_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA442_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA443_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA444_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA445_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA446_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA447_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA448_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA449_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA450_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA451_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA452_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA453_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA454_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA455_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA456_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA457_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA458_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA459_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA460_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA461_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA462_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA463_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA464_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA465_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA466_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA467_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA468_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA469_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA470_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA471_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA472_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA473_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA474_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA475_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA476_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA477_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA478_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA479_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA480_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA481_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA482_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA483_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA484_231024	- Snap Lock Bag	- Frozen Sample
0990_QC148_231023	- Snap Lock Bag	- Frozen Sample
0990_QC149_231023	- Snap Lock Bag	- Frozen Sample
0990_QC150_231023	- Snap Lock Bag	- Frozen Sample
0990_QC151_231023	- Snap Lock Bag	- Frozen Sample
0990_QC152_231024	- Snap Lock Bag	- Frozen Sample
0990_QC153_231024	- Snap Lock Bag	- Frozen Sample
0990_QC154_231024	- Snap Lock Bag	- Frozen Sample
0990_QC155_231024	- Snap Lock Bag	- Frozen Sample
PFOS - Linear/Branched Speciation : EP231-PFOS-SP		
0990_BIOAFA441_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA442_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA443_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA444_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA445_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA446_231023	- Snap Lock Bag	- Frozen Sample

Method *Sample ID*	Sample Container Received	Preferred Sample Container for Analysis
PFOS - Linear/Branched Speciation : EP231-PFOS-SP		
0990_BIOAFA447_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA448_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA449_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA450_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA451_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA452_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA453_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA454_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA455_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA456_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA457_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA458_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA459_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA460_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA461_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA462_231023	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA463_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA464_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA465_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA466_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA467_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA468_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA469_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA470_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA471_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA472_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA473_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA474_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA475_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA476_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA477_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA478_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA479_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA480_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA481_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA482_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA483_231024	- Snap Lock Bag	- Frozen Sample
0990_BIOAFA484_231024	- Snap Lock Bag	- Frozen Sample
0990_QC148_231023	- Snap Lock Bag	- Frozen Sample
0990_QC149_231023	- Snap Lock Bag	- Frozen Sample
0990_QC150_231023	- Snap Lock Bag	- Frozen Sample
0990_QC151_231023	- Snap Lock Bag	- Frozen Sample
0990_QC152_231024	- Snap Lock Bag	- Frozen Sample
0990_QC153_231024	- Snap Lock Bag	- Frozen Sample
0990_QC154_231024	- Snap Lock Bag	- Frozen Sample
0990_QC155_231024	- Snap Lock Bag	- Frozen Sample

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2337465-001	[23-Oct-2023]	0990_BIOAFA441_231024
ES2337465-002	[23-Oct-2023]	0990_BIOAFA442_231023
ES2337465-003	[23-Oct-2023]	0990_BIOAFA443_231023
ES2337465-004	[23-Oct-2023]	0990_BIOAFA444_231023
ES2337465-005	[23-Oct-2023]	0990_BIOAFA445_231023
ES2337465-006	[23-Oct-2023]	0990_BIOAFA446_231023
ES2337465-007	[23-Oct-2023]	0990_BIOAFA447_231023
ES2337465-008	[23-Oct-2023]	0990_BIOAFA448_231023
ES2337465-009	[23-Oct-2023]	0990_BIOAFA449_231023
ES2337465-010	[23-Oct-2023]	0990_BIOAFA450_231023
ES2337465-011	[23-Oct-2023]	0990_BIOAFA451_231023
ES2337465-012	[23-Oct-2023]	0990_BIOAFA452_231023
ES2337465-013	[23-Oct-2023]	0990_BIOAFA453_231023

ES2337465-014	: [23-Oct-2023]	: 0990_BIOAFA454_231023
ES2337465-015	: [23-Oct-2023]	: 0990_BIOAFA455_231023
ES2337465-016	: [23-Oct-2023]	: 0990_BIOAFA456_231023
ES2337465-017	: [23-Oct-2023]	: 0990_BIOAFA457_231023
ES2337465-018	: [23-Oct-2023]	: 0990_BIOAFA458_231023
ES2337465-019	: [23-Oct-2023]	: 0990_BIOAFA459_231023
ES2337465-020	: [23-Oct-2023]	: 0990_BIOAFA460_231023
ES2337465-021	: [23-Oct-2023]	: 0990_BIOAFA461_231023
ES2337465-022	: [23-Oct-2023]	: 0990_BIOAFA462_231023
ES2337465-023	: [24-Oct-2023]	: 0990_BIOAFA463_231024
ES2337465-024	: [24-Oct-2023]	: 0990_BIOAFA464_231024
ES2337465-025	: [24-Oct-2023]	: 0990_BIOAFA465_231024
ES2337465-026	: [24-Oct-2023]	: 0990_BIOAFA466_231024
ES2337465-027	: [24-Oct-2023]	: 0990_BIOAFA467_231024
ES2337465-028	: [24-Oct-2023]	: 0990_BIOAFA468_231024
ES2337465-029	: [24-Oct-2023]	: 0990_BIOAFA469_231024
ES2337465-030	: [24-Oct-2023]	: 0990_BIOAFA470_231024
ES2337465-031	: [24-Oct-2023]	: 0990_BIOAFA471_231024
ES2337465-032	: [24-Oct-2023]	: 0990_BIOAFA472_231024
ES2337465-033	: [24-Oct-2023]	: 0990_BIOAFA473_231024
ES2337465-034	: [24-Oct-2023]	: 0990_BIOAFA474_231024
ES2337465-035	: [24-Oct-2023]	: 0990_BIOAFA475_231024
ES2337465-036	: [24-Oct-2023]	: 0990_BIOAFA476_231024
ES2337465-037	: [24-Oct-2023]	: 0990_BIOAFA477_231024
ES2337465-038	: [24-Oct-2023]	: 0990_BIOAFA478_231024
ES2337465-039	: [24-Oct-2023]	: 0990_BIOAFA479_231024
ES2337465-040	: [24-Oct-2023]	: 0990_BIOAFA480_231024
ES2337465-041	: [24-Oct-2023]	: 0990_BIOAFA481_231024
ES2337465-042	: [24-Oct-2023]	: 0990_BIOAFA482_231024
ES2337465-043	: [24-Oct-2023]	: 0990_BIOAFA483_231024
ES2337465-044	: [24-Oct-2023]	: 0990_BIOAFA484_231024

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: **BIOTA**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	BIOTA - EP231X PFAS - Full Suite (28 analytes) - includes PFOS
ES2337465-001	23-Oct-2023 00:00	0990_BIOAFA441_231024	✓
ES2337465-002	23-Oct-2023 00:00	0990_BIOAFA442_231023	✓
ES2337465-003	23-Oct-2023 00:00	0990_BIOAFA443_231023	✓
ES2337465-004	23-Oct-2023 00:00	0990_BIOAFA444_231023	✓
ES2337465-005	23-Oct-2023 00:00	0990_BIOAFA445_231023	✓
ES2337465-006	23-Oct-2023 00:00	0990_BIOAFA446_231023	✓
ES2337465-007	23-Oct-2023 00:00	0990_BIOAFA447_231023	✓
ES2337465-008	23-Oct-2023 00:00	0990_BIOAFA448_231023	✓
ES2337465-009	23-Oct-2023 00:00	0990_BIOAFA449_231023	✓
ES2337465-010	23-Oct-2023 00:00	0990_BIOAFA450_231023	✓
ES2337465-011	23-Oct-2023 00:00	0990_BIOAFA451_231023	✓
ES2337465-012	23-Oct-2023 00:00	0990_BIOAFA452_231023	✓
ES2337465-013	23-Oct-2023 00:00	0990_BIOAFA453_231023	✓

			BIOTA - EP231X PFAS - Full Suite (28 analytes) - includes PFOS
ES2337465-014	23-Oct-2023 00:00	0990_BIOAFA454_231023	✓
ES2337465-015	23-Oct-2023 00:00	0990_BIOAFA455_231023	✓
ES2337465-016	23-Oct-2023 00:00	0990_BIOAFA456_231023	✓
ES2337465-017	23-Oct-2023 00:00	0990_BIOAFA457_231023	✓
ES2337465-018	23-Oct-2023 00:00	0990_BIOAFA458_231023	✓
ES2337465-019	23-Oct-2023 00:00	0990_BIOAFA459_231023	✓
ES2337465-020	23-Oct-2023 00:00	0990_BIOAFA460_231023	✓
ES2337465-021	23-Oct-2023 00:00	0990_BIOAFA461_231023	✓
ES2337465-022	23-Oct-2023 00:00	0990_BIOAFA462_231023	✓
ES2337465-023	24-Oct-2023 00:00	0990_BIOAFA463_231024	✓
ES2337465-024	24-Oct-2023 00:00	0990_BIOAFA464_231024	✓
ES2337465-025	24-Oct-2023 00:00	0990_BIOAFA465_231024	✓
ES2337465-026	24-Oct-2023 00:00	0990_BIOAFA466_231024	✓
ES2337465-027	24-Oct-2023 00:00	0990_BIOAFA467_231024	✓
ES2337465-028	24-Oct-2023 00:00	0990_BIOAFA468_231024	✓
ES2337465-029	24-Oct-2023 00:00	0990_BIOAFA469_231024	✓
ES2337465-030	24-Oct-2023 00:00	0990_BIOAFA470_231024	✓
ES2337465-031	24-Oct-2023 00:00	0990_BIOAFA471_231024	✓
ES2337465-032	24-Oct-2023 00:00	0990_BIOAFA472_231024	✓
ES2337465-033	24-Oct-2023 00:00	0990_BIOAFA473_231024	✓
ES2337465-034	24-Oct-2023 00:00	0990_BIOAFA474_231024	✓
ES2337465-035	24-Oct-2023 00:00	0990_BIOAFA475_231024	✓
ES2337465-036	24-Oct-2023 00:00	0990_BIOAFA476_231024	✓
ES2337465-037	24-Oct-2023 00:00	0990_BIOAFA477_231024	✓
ES2337465-038	24-Oct-2023 00:00	0990_BIOAFA478_231024	✓
ES2337465-039	24-Oct-2023 00:00	0990_BIOAFA479_231024	✓
ES2337465-040	24-Oct-2023 00:00	0990_BIOAFA480_231024	✓
ES2337465-041	24-Oct-2023 00:00	0990_BIOAFA481_231024	✓
ES2337465-042	24-Oct-2023 00:00	0990_BIOAFA482_231024	✓
ES2337465-043	24-Oct-2023 00:00	0990_BIOAFA483_231024	✓
ES2337465-044	24-Oct-2023 00:00	0990_BIOAFA484_231024	✓
ES2337465-046	23-Oct-2023 00:00	0990_QC148_231023	✓
ES2337465-047	23-Oct-2023 00:00	0990_QC149_231023	✓
ES2337465-048	23-Oct-2023 00:00	0990_QC150_231023	✓
ES2337465-049	23-Oct-2023 00:00	0990_QC151_231023	✓
ES2337465-050	24-Oct-2023 00:00	0990_QC152_231024	✓
ES2337465-051	24-Oct-2023 00:00	0990_QC153_231024	✓
ES2337465-052	23-Oct-2023 00:00	0990_QC154_231024	✓
ES2337465-053	24-Oct-2023 00:00	0990_QC155_231024	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2337465-045	24-Oct-2023 00:00	0990_QC147_231024	✓
ES2337465-054	25-Oct-2023 00:00	0990_QC308_231025	✓
ES2337465-055	27-Oct-2023 00:00	0990_QC507_231027	✓
ES2337465-056	25-Oct-2023 00:00	0990_QC508_231025	✓
ES2337465-057	24-Oct-2023 00:00	0990_SW151_231024	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

QUALITY CONTROL REPORT

Work Order	: **ES2337465**	Page	: 1 of 15
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	[redacted]
Address		Address	
Telephone	: ----	Telephone	
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Oct-2023
Order number	: 60612561/3.1	Date Analysis Commenced	: 07-Nov-2023
C-O-C number	: ----	Issue Date	: 04-Dec-2023
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 57		
No. of samples analysed	: 57		

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]		

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **BIOTA**

				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: 5408885)									
ES2337465-001	0990_BIOAFA441_231024	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	32	36	13.0	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
ES2337465-011	0990_BIOAFA451_231023	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	42	44	4.8	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5408992)									
ES2337465-021	0990_BIOAFA461_231023	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	13	14	0.0	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
ES2337465-031	0990_BIOAFA471_231024	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **BIOTA**

				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: 5408992) - continued									
ES2337465-031	0990_BIOAFA471_231024	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	74	65	12.4	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5409251)									
ES2337465-041	0990_BIOAFA481_231024	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	189	191	1.2	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
ES2337465-052	0990_QC154_231024	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	39	39	0.0	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5408885)									
ES2337465-001	0990_BIOAFA441_231024	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	0.0	No Limit
ES2337465-011	0990_BIOAFA451_231023	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1 (2)*	µg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **BIOTA**

				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: 5408885) - continued									
ES2337465-011	0990_BIOAFA451_231023	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5408992)									
ES2337465-021	0990_BIOAFA461_231023	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	0.0	No Limit
ES2337465-031	0990_BIOAFA471_231024	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5409251)									
ES2337465-041	0990_BIOAFA481_231024	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **BIOTA**

				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: 5409251) - continued									
ES2337465-041	0990_BIOAFA481_231024	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	0.0	No Limit
ES2337465-052	0990_QC154_231024	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5408885)									
ES2337465-001	0990_BIOAFA441_231024	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	<2	0.0	No Limit
ES2337465-011	0990_BIOAFA451_231023	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	<2	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5408992)									

Sub-Matrix: **BIOTA**

				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: 5408992) - continued									
ES2337465-021	0990_BIOAFA461_231023	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	<2	0.0	No Limit
ES2337465-031	0990_BIOAFA471_231024	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	<2	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5409251)									
ES2337465-041	0990_BIOAFA481_231024	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	<2	0.0	No Limit
ES2337465-052	0990_QC154_231024	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1 (5)*	µg/kg	<5	<5	0.0	No Limit

Sub-Matrix: **BIOTA**

				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: 5409251) - continued									
ES2337465-052	0990_QC154_231024	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	<2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5408885)									
ES2337465-001	0990_BIOAFA441_231024	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	<2	0.0	No Limit
ES2337465-011	0990_BIOAFA451_231023	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	<2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5408992)									
ES2337465-021	0990_BIOAFA461_231023	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	<2	0.0	No Limit
ES2337465-031	0990_BIOAFA471_231024	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	<2	0.0	No Limit

Sub-Matrix: **BIOTA**

				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: 5408992) - continued									
ES2337465-031	0990_BIOAFA471_231024	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	<2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5409251)									
ES2337465-041	0990_BIOAFA481_231024	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	<2	0.0	No Limit
ES2337465-052	0990_QC154_231024	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	<2	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	<2	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5408885)									
ES2337465-001	0990_BIOAFA441_231024	EP231X: Sum of PFAS	----	1	µg/kg	32	36	11.8	0% - 20%
ES2337465-011	0990_BIOAFA451_231023	EP231X: Sum of PFAS	----	1	µg/kg	42	44	4.7	0% - 20%
EP231P: PFAS Sums (QC Lot: 5408992)									
ES2337465-021	0990_BIOAFA461_231023	EP231X: Sum of PFAS	----	1	µg/kg	13	14	7.4	0% - 50%
ES2337465-031	0990_BIOAFA471_231024	EP231X: Sum of PFAS	----	1	µg/kg	74	65	12.9	0% - 20%
EP231P: PFAS Sums (QC Lot: 5409251)									
ES2337465-041	0990_BIOAFA481_231024	EP231X: Sum of PFAS	----	1	µg/kg	189	191	1.1	0% - 20%
ES2337465-052	0990_QC154_231024	EP231X: Sum of PFAS	----	1	µg/kg	39	39	0.0	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: **BIOTA**

				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: 5408885)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	5 µg/kg	84.3	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	5 µg/kg	88.5	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	5 µg/kg	84.8	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	5 µg/kg	98.5	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	<1	5 µg/kg	91.2	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1	µg/kg	<1	5 µg/kg	91.8	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5408992)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	5 µg/kg	82.6	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	5 µg/kg	77.0	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	5 µg/kg	70.1	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	5 µg/kg	97.9	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	<1	5 µg/kg	88.4	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1	µg/kg	<1	5 µg/kg	82.9	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5409251)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	5 µg/kg	82.0	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	5 µg/kg	88.3	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	5 µg/kg	88.1	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	5 µg/kg	98.8	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	<1	5 µg/kg	99.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1	µg/kg	<1	5 µg/kg	100	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5408885)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	25 µg/kg	89.8	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1	µg/kg	<1	5 µg/kg	96.3	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	5 µg/kg	94.7	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	5 µg/kg	89.0	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	5 µg/kg	107	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	5 µg/kg	100	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	5 µg/kg	91.6	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	5 µg/kg	98.5	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1	µg/kg	<1	5 µg/kg	99.9	69.0	135

Sub-Matrix: **BIOTA**

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: 5408885) - continued								
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1	µg/kg	<1	5 µg/kg	99.8	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	12.5 µg/kg	81.4	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5408992)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	25 µg/kg	90.0	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1	µg/kg	<1	5 µg/kg	93.3	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	5 µg/kg	89.2	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	5 µg/kg	84.9	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	5 µg/kg	111	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	5 µg/kg	99.0	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	5 µg/kg	100.0	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	5 µg/kg	109	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1	µg/kg	<1	5 µg/kg	96.1	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1	µg/kg	<1	5 µg/kg	98.4	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	12.5 µg/kg	91.1	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5409251)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	25 µg/kg	93.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1	µg/kg	<1	5 µg/kg	90.3	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	5 µg/kg	92.5	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	5 µg/kg	93.3	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	5 µg/kg	99.5	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	5 µg/kg	93.8	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	5 µg/kg	92.2	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	5 µg/kg	96.5	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1	µg/kg	<1	5 µg/kg	92.7	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1	µg/kg	<1	5 µg/kg	108	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	12.5 µg/kg	97.0	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5408885)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1	µg/kg	<1	5 µg/kg	83.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2	µg/kg	<2	12.5 µg/kg	# 124	88.1	105
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	12.5 µg/kg	96.4	81.6	144
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	12.5 µg/kg	97.2	84.7	135
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	12.5 µg/kg	86.4	20.5	150

Sub-Matrix: **BIOTA**

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: 5408885) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	5 µg/kg	97.7	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	5 µg/kg	80.9	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5408992)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1	µg/kg	<1	5 µg/kg	95.7	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2	µg/kg	<2	12.5 µg/kg	103	88.1	105
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	12.5 µg/kg	102	81.6	144
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	12.5 µg/kg	97.2	84.7	135
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	12.5 µg/kg	108	20.5	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	5 µg/kg	84.0	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	5 µg/kg	76.1	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5409251)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1	µg/kg	<1	5 µg/kg	85.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2	µg/kg	<2	12.5 µg/kg	# 111	88.1	105
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	12.5 µg/kg	96.0	81.6	144
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	12.5 µg/kg	98.5	84.7	135
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	12.5 µg/kg	102	20.5	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	5 µg/kg	93.1	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	5 µg/kg	93.5	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5408885)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	5 µg/kg	98.8	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	5 µg/kg	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	5 µg/kg	95.4	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	5 µg/kg	# 83.9	93.4	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5408992)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	5 µg/kg	79.6	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	5 µg/kg	89.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	5 µg/kg	100	65.0	137

Sub-Matrix: **BIOTA**

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: 5408992) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	5 µg/kg	# 87.0	93.4	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5409251)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	5 µg/kg	90.6	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	5 µg/kg	98.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	5 µg/kg	103	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	5 µg/kg	# 91.2	93.4	130
EP231P: PFAS Sums (QCLot: 5408885)								
EP231X: Sum of PFAS	----	1	µg/kg	<1	----	----	----	----
EP231P: PFAS Sums (QCLot: 5408992)								
EP231X: Sum of PFAS	----	1	µg/kg	<1	----	----	----	----
EP231P: PFAS Sums (QCLot: 5409251)								
EP231X: Sum of PFAS	----	1	µg/kg	<1	----	----	----	----

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: 5455386)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	83.2	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	83.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	92.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	89.1	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	80.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5455386)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	81.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	94.3	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	88.5	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	92.7	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	88.1	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	87.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	90.3	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	90.3	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	83.9	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	97.5	71.0	132

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5455386)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	88.1	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.9	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.3	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	89.2	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	88.7	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	90.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.3	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5455386)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	86.0	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	86.6	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	90.4	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	103	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **BIOTA**

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: 5408885)							
ES2337465-002	0990_BIOAFA442_231023	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	5 µg/kg	91.0	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	5 µg/kg	82.3	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	5 µg/kg	89.5	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	5 µg/kg	97.1	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	5 µg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	5 µg/kg	81.3	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5408992)							
ES2337465-022	0990_BIOAFA462_231023	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	5 µg/kg	87.4	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	5 µg/kg	78.9	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	5 µg/kg	84.2	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	5 µg/kg	86.8	70.0	132

Sub-Matrix: **BIOTA**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5408992) - continued							
ES2337465-022	0990_BIOAFA462_231023	EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	5 µg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	5 µg/kg	90.4	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5408885)							
ES2337465-002	0990_BIOAFA442_231023	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	25 µg/kg	90.2	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	5 µg/kg	86.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	5 µg/kg	88.1	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	5 µg/kg	87.6	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	5 µg/kg	104	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	5 µg/kg	95.5	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	5 µg/kg	94.2	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	5 µg/kg	96.7	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	5 µg/kg	94.3	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	5 µg/kg	95.1	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	12.5 µg/kg	92.7	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5408992)							
ES2337465-022	0990_BIOAFA462_231023	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	25 µg/kg	94.0	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	5 µg/kg	80.1	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	5 µg/kg	86.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	5 µg/kg	87.2	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	5 µg/kg	109	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	5 µg/kg	100	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	5 µg/kg	101	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	5 µg/kg	89.7	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	5 µg/kg	89.0	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	5 µg/kg	80.7	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	12.5 µg/kg	95.6	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5408885)							
ES2337465-002	0990_BIOAFA442_231023	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	5 µg/kg	106	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	12.5 µg/kg	# 117	88.1	105
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	12.5 µg/kg	# 80.2	81.6	144
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	12.5 µg/kg	91.0	84.7	135
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	12.5 µg/kg	92.0	20.5	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	5 µg/kg	103	63.0	144

Sub-Matrix: **BIOTA**

				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: 5408885) - continued							
ES2337465-002	0990_BIOAFA442_231023	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	5 µg/kg	84.3	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5408992)							
ES2337465-022	0990_BIOAFA462_231023	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	5 µg/kg	94.8	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	12.5 µg/kg	# 118	88.1	105
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	12.5 µg/kg	89.5	81.6	144
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	12.5 µg/kg	98.1	84.7	135
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	12.5 µg/kg	93.6	20.5	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	5 µg/kg	89.0	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	5 µg/kg	81.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5408885)							
ES2337465-002	0990_BIOAFA442_231023	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	5 µg/kg	95.0	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	5 µg/kg	125	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	5 µg/kg	110	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	5 µg/kg	102	93.4	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5408992)							
ES2337465-022	0990_BIOAFA462_231023	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	5 µg/kg	95.5	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	5 µg/kg	90.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	5 µg/kg	105	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	5 µg/kg	94.6	93.4	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2337465**	Page	: 1 of 13
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Oct-2023
Site	: ----	Issue Date	: 04-Dec-2023
Sampler	: [redacted]	No. of samples received	: 57
Order number	: 60612561/3.1	No. of samples analysed	: 57

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

- **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: **BIOTA**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP231C: Perfluoroalkyl Sulfonamides	QC-5408885-002	----	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	124 %	88.1-105%	**Recovery greater than upper control limit**
EP231C: Perfluoroalkyl Sulfonamides	QC-5409251-002	----	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	111 %	88.1-105%	**Recovery greater than upper control limit**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	QC-5408885-002	----	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	83.9 %	93.4-130%	**Recovery less than lower control limit**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	QC-5408992-002	----	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	87.0 %	93.4-130%	**Recovery less than lower control limit**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	QC-5409251-002	----	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	91.2 %	93.4-130%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	ES2337465--002	0990_BIOAFA442_231023	**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	ES2337465--022	0990_BIOAFA462_231023	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231C: Perfluoroalkyl Sulfonamides	ES2337465--002	0990_BIOAFA442_231023	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	117 %	88.1-105%	**Recovery greater than upper data quality objective**
EP231C: Perfluoroalkyl Sulfonamides	ES2337465--022	0990_BIOAFA462_231023	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	118 %	88.1-105%	**Recovery greater than upper data quality objective**
EP231C: Perfluoroalkyl Sulfonamides	ES2337465--002	0990_BIOAFA442_231023	**N-Ethyl perfluorooctane sulfonamide (EtFOSA)**	4151-50-2	80.2 %	81.6-144%	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **BIOTA**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	

Matrix: **BIOTA**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	52	3.85	5.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	0.00	10.00	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

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: **BIOTA**

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*
Biota Sample Pre-Preparation								
Snap Lock Bag (Biota-PP)								
0990_BIOAFA441_231024,	0990_BIOAFA442_231023,	**23-Oct-2023**	**07-Nov-2023**	----	----	**----**	----	----
0990_BIOAFA443_231023,	0990_BIOAFA444_231023,							
0990_BIOAFA445_231023,	0990_BIOAFA446_231023,							
0990_BIOAFA447_231023,	0990_BIOAFA448_231023,							
0990_BIOAFA449_231023,	0990_BIOAFA450_231023,							
0990_BIOAFA451_231023,	0990_BIOAFA452_231023,							
0990_BIOAFA453_231023,	0990_BIOAFA454_231023,							
0990_BIOAFA455_231023,	0990_BIOAFA456_231023,							
0990_BIOAFA457_231023,	0990_BIOAFA458_231023,							
0990_BIOAFA459_231023,	0990_BIOAFA460_231023,							
0990_BIOAFA461_231023,	0990_BIOAFA462_231023,							
0990_QC148_231023,	0990_QC149_231023,							
0990_QC150_231023,	0990_QC151_231023,							
0990_QC154_231024								
Snap Lock Bag (Biota-PP)								

Matrix: **BIOTA**

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
Biota Sample Pre-Preparation - Continued							
0990_BIOAFA463_231024, 0990_BIOAFA464_231024, 0990_BIOAFA465_231024, 0990_BIOAFA466_231024, 0990_BIOAFA467_231024, 0990_BIOAFA468_231024, 0990_BIOAFA469_231024, 0990_BIOAFA470_231024, 0990_BIOAFA471_231024, 0990_BIOAFA472_231024, 0990_BIOAFA473_231024, 0990_BIOAFA474_231024, 0990_BIOAFA475_231024, 0990_BIOAFA476_231024, 0990_BIOAFA477_231024, 0990_BIOAFA478_231024, 0990_BIOAFA479_231024, 0990_BIOAFA480_231024, 0990_BIOAFA481_231024, 0990_BIOAFA482_231024, 0990_BIOAFA483_231024, 0990_BIOAFA484_231024, 0990_QC152_231024, 0990_QC153_231024, 0990_QC155_231024	24-Oct-2023	07-Nov-2023	----	----	----	----	----

Matrix: **BIOTA**

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							
Snap Lock Bag (EP231-PFOS-SP) 0990_BIOAFA441_231024, 0990_BIOAFA442_231023, 0990_BIOAFA443_231023, 0990_BIOAFA444_231023, 0990_BIOAFA445_231023, 0990_BIOAFA446_231023, 0990_BIOAFA447_231023, 0990_BIOAFA448_231023, 0990_BIOAFA449_231023, 0990_BIOAFA450_231023, 0990_BIOAFA451_231023, 0990_BIOAFA452_231023, 0990_BIOAFA453_231023, 0990_BIOAFA454_231023, 0990_BIOAFA455_231023, 0990_BIOAFA456_231023, 0990_BIOAFA457_231023, 0990_BIOAFA458_231023, 0990_BIOAFA459_231023, 0990_BIOAFA460_231023	**23-Oct-2023**	**15-Nov-2023**	20-Apr-2024	✓	**17-Nov-2023**	25-Dec-2023	✓
Snap Lock Bag (EP231X) 0990_BIOAFA441_231024, 0990_BIOAFA442_231023, 0990_BIOAFA443_231023, 0990_BIOAFA444_231023, 0990_BIOAFA445_231023, 0990_BIOAFA446_231023, 0990_BIOAFA447_231023, 0990_BIOAFA448_231023, 0990_BIOAFA449_231023, 0990_BIOAFA450_231023, 0990_BIOAFA451_231023, 0990_BIOAFA452_231023, 0990_BIOAFA453_231023, 0990_BIOAFA454_231023, 0990_BIOAFA455_231023, 0990_BIOAFA456_231023, 0990_BIOAFA457_231023, 0990_BIOAFA458_231023, 0990_BIOAFA459_231023, 0990_BIOAFA460_231023	**23-Oct-2023**	**15-Nov-2023**	20-Apr-2024	✓	**20-Nov-2023**	25-Dec-2023	✓
Snap Lock Bag (EP231-PFOS-SP) 0990_BIOAFA461_231023, 0990_BIOAFA462_231023	**23-Oct-2023**	**22-Nov-2023**	20-Apr-2024	✓	**23-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA461_231023, 0990_BIOAFA462_231023	**23-Oct-2023**	**22-Nov-2023**	20-Apr-2024	✓	**24-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231-PFOS-SP) 0990_QC148_231023, 0990_QC149_231023, 0990_QC150_231023, 0990_QC151_231023, 0990_QC154_231024	**23-Oct-2023**	**23-Nov-2023**	20-Apr-2024	✓	**24-Nov-2023**	02-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_QC148_231023, 0990_QC149_231023, 0990_QC150_231023, 0990_QC151_231023, 0990_QC154_231024	**23-Oct-2023**	**23-Nov-2023**	20-Apr-2024	✓	**27-Nov-2023**	02-Jan-2024	✓
Snap Lock Bag (EP231-PFOS-SP)							

Matrix: **BIOTA**

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							
0990_BIOAFA463_231024, 0990_BIOAFA464_231024, 0990_BIOAFA465_231024, 0990_BIOAFA466_231024, 0990_BIOAFA467_231024, 0990_BIOAFA468_231024, 0990_BIOAFA469_231024, 0990_BIOAFA470_231024, 0990_BIOAFA471_231024, 0990_BIOAFA472_231024, 0990_BIOAFA473_231024, 0990_BIOAFA474_231024, 0990_BIOAFA475_231024, 0990_BIOAFA476_231024, 0990_BIOAFA477_231024, 0990_BIOAFA478_231024, 0990_BIOAFA479_231024, 0990_BIOAFA480_231024	**24-Oct-2023**	**22-Nov-2023**	21-Apr-2024	✓	**23-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA463_231024, 0990_BIOAFA464_231024, 0990_BIOAFA465_231024, 0990_BIOAFA466_231024, 0990_BIOAFA467_231024, 0990_BIOAFA468_231024, 0990_BIOAFA469_231024, 0990_BIOAFA470_231024, 0990_BIOAFA471_231024, 0990_BIOAFA472_231024, 0990_BIOAFA473_231024, 0990_BIOAFA474_231024, 0990_BIOAFA475_231024, 0990_BIOAFA476_231024, 0990_BIOAFA477_231024, 0990_BIOAFA478_231024, 0990_BIOAFA479_231024, 0990_BIOAFA480_231024	**24-Oct-2023**	**22-Nov-2023**	21-Apr-2024	✓	**24-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231-PFOS-SP) 0990_BIOAFA481_231024, 0990_BIOAFA482_231024, 0990_BIOAFA483_231024, 0990_BIOAFA484_231024, 0990_QC152_231024, 0990_QC153_231024, 0990_QC155_231024	**24-Oct-2023**	**23-Nov-2023**	21-Apr-2024	✓	**24-Nov-2023**	02-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA481_231024, 0990_BIOAFA482_231024, 0990_BIOAFA483_231024, 0990_BIOAFA484_231024, 0990_QC152_231024, 0990_QC153_231024, 0990_QC155_231024	**24-Oct-2023**	**23-Nov-2023**	21-Apr-2024	✓	**27-Nov-2023**	02-Jan-2024	✓

Matrix: **BIOTA**

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							
Snap Lock Bag (EP231X) 0990_BIOAFA441_231024, 0990_BIOAFA442_231023, 0990_BIOAFA443_231023, 0990_BIOAFA444_231023, 0990_BIOAFA445_231023, 0990_BIOAFA446_231023, 0990_BIOAFA447_231023, 0990_BIOAFA448_231023, 0990_BIOAFA449_231023, 0990_BIOAFA450_231023, 0990_BIOAFA451_231023, 0990_BIOAFA452_231023, 0990_BIOAFA453_231023, 0990_BIOAFA454_231023, 0990_BIOAFA455_231023, 0990_BIOAFA456_231023, 0990_BIOAFA457_231023, 0990_BIOAFA458_231023, 0990_BIOAFA459_231023, 0990_BIOAFA460_231023	**23-Oct-2023**	**15-Nov-2023**	20-Apr-2024	✓	**20-Nov-2023**	25-Dec-2023	✓
Snap Lock Bag (EP231X) 0990_BIOAFA461_231023, 0990_BIOAFA462_231023	**23-Oct-2023**	**22-Nov-2023**	20-Apr-2024	✓	**24-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_QC148_231023, 0990_QC149_231023, 0990_QC150_231023, 0990_QC151_231023, 0990_QC154_231024	**23-Oct-2023**	**23-Nov-2023**	20-Apr-2024	✓	**27-Nov-2023**	02-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA463_231024, 0990_BIOAFA464_231024, 0990_BIOAFA465_231024, 0990_BIOAFA466_231024, 0990_BIOAFA467_231024, 0990_BIOAFA468_231024, 0990_BIOAFA469_231024, 0990_BIOAFA470_231024, 0990_BIOAFA471_231024, 0990_BIOAFA472_231024, 0990_BIOAFA473_231024, 0990_BIOAFA474_231024, 0990_BIOAFA475_231024, 0990_BIOAFA476_231024, 0990_BIOAFA477_231024, 0990_BIOAFA478_231024, 0990_BIOAFA479_231024, 0990_BIOAFA480_231024	**24-Oct-2023**	**22-Nov-2023**	21-Apr-2024	✓	**24-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA481_231024, 0990_BIOAFA482_231024, 0990_BIOAFA483_231024, 0990_BIOAFA484_231024, 0990_QC152_231024, 0990_QC153_231024, 0990_QC155_231024	**24-Oct-2023**	**23-Nov-2023**	21-Apr-2024	✓	**27-Nov-2023**	02-Jan-2024	✓

Matrix: **BIOTA**

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							
Snap Lock Bag (EP231X) 0990_BIOAFA441_231024, 0990_BIOAFA442_231023, 0990_BIOAFA443_231023, 0990_BIOAFA444_231023, 0990_BIOAFA445_231023, 0990_BIOAFA446_231023, 0990_BIOAFA447_231023, 0990_BIOAFA448_231023, 0990_BIOAFA449_231023, 0990_BIOAFA450_231023, 0990_BIOAFA451_231023, 0990_BIOAFA452_231023, 0990_BIOAFA453_231023, 0990_BIOAFA454_231023, 0990_BIOAFA455_231023, 0990_BIOAFA456_231023, 0990_BIOAFA457_231023, 0990_BIOAFA458_231023, 0990_BIOAFA459_231023, 0990_BIOAFA460_231023	**23-Oct-2023**	**15-Nov-2023**	20-Apr-2024	✓	**20-Nov-2023**	25-Dec-2023	✓
Snap Lock Bag (EP231X) 0990_BIOAFA461_231023, 0990_BIOAFA462_231023	**23-Oct-2023**	**22-Nov-2023**	20-Apr-2024	✓	**24-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_QC148_231023, 0990_QC149_231023, 0990_QC150_231023, 0990_QC151_231023, 0990_QC154_231024	**23-Oct-2023**	**23-Nov-2023**	20-Apr-2024	✓	**27-Nov-2023**	02-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA463_231024, 0990_BIOAFA464_231024, 0990_BIOAFA465_231024, 0990_BIOAFA466_231024, 0990_BIOAFA467_231024, 0990_BIOAFA468_231024, 0990_BIOAFA469_231024, 0990_BIOAFA470_231024, 0990_BIOAFA471_231024, 0990_BIOAFA472_231024, 0990_BIOAFA473_231024, 0990_BIOAFA474_231024, 0990_BIOAFA475_231024, 0990_BIOAFA476_231024, 0990_BIOAFA477_231024, 0990_BIOAFA478_231024, 0990_BIOAFA479_231024, 0990_BIOAFA480_231024	**24-Oct-2023**	**22-Nov-2023**	21-Apr-2024	✓	**24-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA481_231024, 0990_BIOAFA482_231024, 0990_BIOAFA483_231024, 0990_BIOAFA484_231024, 0990_QC152_231024, 0990_QC153_231024, 0990_QC155_231024	**24-Oct-2023**	**23-Nov-2023**	21-Apr-2024	✓	**27-Nov-2023**	02-Jan-2024	✓

Matrix: **BIOTA**

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							
Snap Lock Bag (EP231X) 0990_BIOAFA441_231024, 0990_BIOAFA442_231023, 0990_BIOAFA443_231023, 0990_BIOAFA444_231023, 0990_BIOAFA445_231023, 0990_BIOAFA446_231023, 0990_BIOAFA447_231023, 0990_BIOAFA448_231023, 0990_BIOAFA449_231023, 0990_BIOAFA450_231023, 0990_BIOAFA451_231023, 0990_BIOAFA452_231023, 0990_BIOAFA453_231023, 0990_BIOAFA454_231023, 0990_BIOAFA455_231023, 0990_BIOAFA456_231023, 0990_BIOAFA457_231023, 0990_BIOAFA458_231023, 0990_BIOAFA459_231023, 0990_BIOAFA460_231023	**23-Oct-2023**	**15-Nov-2023**	20-Apr-2024	✓	**20-Nov-2023**	25-Dec-2023	✓
Snap Lock Bag (EP231X) 0990_BIOAFA461_231023, 0990_BIOAFA462_231023	**23-Oct-2023**	**22-Nov-2023**	20-Apr-2024	✓	**24-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_QC148_231023, 0990_QC149_231023, 0990_QC150_231023, 0990_QC151_231023, 0990_QC154_231024	**23-Oct-2023**	**23-Nov-2023**	20-Apr-2024	✓	**27-Nov-2023**	02-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA463_231024, 0990_BIOAFA464_231024, 0990_BIOAFA465_231024, 0990_BIOAFA466_231024, 0990_BIOAFA467_231024, 0990_BIOAFA468_231024, 0990_BIOAFA469_231024, 0990_BIOAFA470_231024, 0990_BIOAFA471_231024, 0990_BIOAFA472_231024, 0990_BIOAFA473_231024, 0990_BIOAFA474_231024, 0990_BIOAFA475_231024, 0990_BIOAFA476_231024, 0990_BIOAFA477_231024, 0990_BIOAFA478_231024, 0990_BIOAFA479_231024, 0990_BIOAFA480_231024	**24-Oct-2023**	**22-Nov-2023**	21-Apr-2024	✓	**24-Nov-2023**	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA481_231024, 0990_BIOAFA482_231024, 0990_BIOAFA483_231024, 0990_BIOAFA484_231024, 0990_QC152_231024, 0990_QC153_231024, 0990_QC155_231024	**24-Oct-2023**	**23-Nov-2023**	21-Apr-2024	✓	**27-Nov-2023**	02-Jan-2024	✓

Matrix: **BIOTA**

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							
Snap Lock Bag (EP231X) 0990_BIOAFA441_231024, 0990_BIOAFA442_231023, 0990_BIOAFA443_231023, 0990_BIOAFA444_231023, 0990_BIOAFA445_231023, 0990_BIOAFA446_231023, 0990_BIOAFA447_231023, 0990_BIOAFA448_231023, 0990_BIOAFA449_231023, 0990_BIOAFA450_231023, 0990_BIOAFA451_231023, 0990_BIOAFA452_231023, 0990_BIOAFA453_231023, 0990_BIOAFA454_231023, 0990_BIOAFA455_231023, 0990_BIOAFA456_231023, 0990_BIOAFA457_231023, 0990_BIOAFA458_231023, 0990_BIOAFA459_231023, 0990_BIOAFA460_231023	23-Oct-2023	15-Nov-2023	20-Apr-2024	✓	20-Nov-2023	25-Dec-2023	✓
Snap Lock Bag (EP231X) 0990_BIOAFA461_231023, 0990_BIOAFA462_231023	23-Oct-2023	22-Nov-2023	20-Apr-2024	✓	24-Nov-2023	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_QC148_231023, 0990_QC149_231023, 0990_QC150_231023, 0990_QC151_231023, 0990_QC154_231024	23-Oct-2023	23-Nov-2023	20-Apr-2024	✓	27-Nov-2023	02-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA463_231024, 0990_BIOAFA464_231024, 0990_BIOAFA465_231024, 0990_BIOAFA466_231024, 0990_BIOAFA467_231024, 0990_BIOAFA468_231024, 0990_BIOAFA469_231024, 0990_BIOAFA470_231024, 0990_BIOAFA471_231024, 0990_BIOAFA472_231024, 0990_BIOAFA473_231024, 0990_BIOAFA474_231024, 0990_BIOAFA475_231024, 0990_BIOAFA476_231024, 0990_BIOAFA477_231024, 0990_BIOAFA478_231024, 0990_BIOAFA479_231024, 0990_BIOAFA480_231024	24-Oct-2023	22-Nov-2023	21-Apr-2024	✓	24-Nov-2023	01-Jan-2024	✓
Snap Lock Bag (EP231X) 0990_BIOAFA481_231024, 0990_BIOAFA482_231024, 0990_BIOAFA483_231024, 0990_BIOAFA484_231024, 0990_QC152_231024, 0990_QC153_231024, 0990_QC155_231024	24-Oct-2023	23-Nov-2023	21-Apr-2024	✓	27-Nov-2023	02-Jan-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0990_QC147_231024, 0990_SW151_231024	24-Oct-2023	29-Nov-2023	21-Apr-2024	✓	30-Nov-2023	21-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC308_231025, 0990_QC508_231025	25-Oct-2023	29-Nov-2023	22-Apr-2024	✓	30-Nov-2023	22-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC507_231027	27-Oct-2023	29-Nov-2023	24-Apr-2024	✓	30-Nov-2023	24-Apr-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) 0990_QC147_231024,	0990_SW151_231024	**24-Oct-2023**	**29-Nov-2023**	21-Apr-2024	✓	**30-Nov-2023**	21-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC308_231025,	0990_QC508_231025	**25-Oct-2023**	**29-Nov-2023**	22-Apr-2024	✓	**30-Nov-2023**	22-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC507_231027		**27-Oct-2023**	**29-Nov-2023**	24-Apr-2024	✓	**30-Nov-2023**	24-Apr-2024	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X) 0990_QC147_231024,	0990_SW151_231024	**24-Oct-2023**	**29-Nov-2023**	21-Apr-2024	✓	**30-Nov-2023**	21-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC308_231025,	0990_QC508_231025	**25-Oct-2023**	**29-Nov-2023**	22-Apr-2024	✓	**30-Nov-2023**	22-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC507_231027		**27-Oct-2023**	**29-Nov-2023**	24-Apr-2024	✓	**30-Nov-2023**	24-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) 0990_QC147_231024,	0990_SW151_231024	**24-Oct-2023**	**29-Nov-2023**	21-Apr-2024	✓	**30-Nov-2023**	21-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC308_231025,	0990_QC508_231025	**25-Oct-2023**	**29-Nov-2023**	22-Apr-2024	✓	**30-Nov-2023**	22-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC507_231027		**27-Oct-2023**	**29-Nov-2023**	24-Apr-2024	✓	**30-Nov-2023**	24-Apr-2024	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X) 0990_QC147_231024,	0990_SW151_231024	**24-Oct-2023**	**29-Nov-2023**	21-Apr-2024	✓	**30-Nov-2023**	21-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC308_231025,	0990_QC508_231025	**25-Oct-2023**	**29-Nov-2023**	22-Apr-2024	✓	**30-Nov-2023**	22-Apr-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC507_231027		**27-Oct-2023**	**29-Nov-2023**	24-Apr-2024	✓	**30-Nov-2023**	24-Apr-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **BIOTA**

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	52	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	52	**5.77**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	52	**5.77**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	52	**3.85**	**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	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
PFOS - Linear/Branched Speciation	EP231-PFOS-SP	BIOTA	In-house: Linear PFOS is determined by quantiation of the separate linear peak using linear PFOS. Branched PFOS is determined as the difference between total PFOS (determined using a mixed linear/branched standard) and linear PFOS.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	BIOTA	In-house: A sample extract is analysed 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 biota which is then solvent extracted. 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
Prep-Preparation for Biota Analysis	* Biota-PP	BIOTA	A sample is prepared from whole or particular tissues/organs, identified, homogenised and the total weight of prepared sample recorded.
Sample Preparation for PFAS in Biota	EP231-PR	BIOTA	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of homogenised biota 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 conform to US DoD QSM 5.3, table B-15 requirements.
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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2337465**	Page	: 1 of 36
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	:	Address	:
Telephone	: ----	Telephone	:
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 31-Oct-2023 09:41
Order number	: 60612561/3.1	Date Analysis Commenced	: 07-Nov-2023
C-O-C number	: ----	Issue Date	: 04-Dec-2023 10:42
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 57		
No. of samples analysed	: 57		

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]		

General Comments

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

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

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

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

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

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

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

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X (Biota): ALS NATA accreditation for PFAS in Biota covers all Perfluoroalkyl Sulfonic Acids, Perfluoroalkyl Carboxylic Acids and (n:2) Fluorotelomer Sulfonic Acids in fish (whole and muscle), plants and vegetable matrices, with the exception PFBA (fish only), EtFOSA, MeFOSE, EtFOSE, MeFOSAA, EtFOSAA.
- 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: BIOTA (Matrix: BIOTA)			Sample ID	0990_BIOAFA441_231024	0990_BIOAFA442_231023	0990_BIOAFA443_231023	0990_BIOAFA444_231023	0990_BIOAFA445_231023
			Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2337465-001	ES2337465-002	ES2337465-003	ES2337465-004	ES2337465-005
				Result	Result	Result	Result	Result
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	Fillet	Fillet	Fillet	Fillet	Fillet
ø Weight of Sample Prepared	----	0.1	g	101	89.4	61.5	37.2	35.2
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	27	84	28	12	20
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	5	14	4	1	3
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	32	98	32	13	23
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA441_231024	0990_BIOAFA442_231023	0990_BIOAFA443_231023	0990_BIOAFA444_231023	0990_BIOAFA445_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-001	ES2337465-002	ES2337465-003	ES2337465-004	ES2337465-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ Sum of PFAS	----	1	µg/kg		**32**	**98**	**32**	**13**	**23**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**111**	**102**	**84.2**	**109**	**106**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA441_231024	0990_BIOAFA442_231023	0990_BIOAFA443_231023	0990_BIOAFA444_231023	0990_BIOAFA445_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-001	ES2337465-002	ES2337465-003	ES2337465-004	ES2337465-005
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		106	106	101	95.8	114

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)			Sample ID	0990_BIOAFA446_231023	0990_BIOAFA447_231023	0990_BIOAFA448_231023	0990_BIOAFA449_231023	0990_BIOAFA450_231023
			Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2337465-006	ES2337465-007	ES2337465-008	ES2337465-009	ES2337465-010
				Result	Result	Result	Result	Result
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	Fillet	Fillet	Fillet	Fillet	Fillet
ø Weight of Sample Prepared	----	0.1	g	32.5	58.7	60.4	45.8	21.4
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	35	17	72	33	24
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	5	2	7	5	3
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	40	19	79	38	27
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA446_231023	0990_BIOAFA447_231023	0990_BIOAFA448_231023	0990_BIOAFA449_231023	0990_BIOAFA450_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-006	ES2337465-007	ES2337465-008	ES2337465-009	ES2337465-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**40**	**19**	**79**	**38**	**27**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**104**	**121**	**114**	**92.4**	**108**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA446_231023	0990_BIOAFA447_231023	0990_BIOAFA448_231023	0990_BIOAFA449_231023	0990_BIOAFA450_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-006	ES2337465-007	ES2337465-008	ES2337465-009	ES2337465-010
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		**107**	**98.3**	**106**	**102**	**114**

Analytical Results

Sub-Matrix: BIOTA
(Matrix: BIOTA)

Compound	CAS Number	LOR	Unit	Sample ID	0990_BIOAFA451_231023	0990_BIOAFA452_231023	0990_BIOAFA453_231023	0990_BIOAFA454_231023	0990_BIOAFA455_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
					ES2337465-011	ES2337465-012	ES2337465-013	ES2337465-014	ES2337465-015
					Result	Result	Result	Result	Result
Biota Sample Pre-Preparation									
ø Sample Description	----	-	--		Fillet	Fillet	Fillet	Fillet	Fillet
ø Weight of Sample Prepared	----	0.1	g		43.9	39.5	36.2	36.0	29.8
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg		<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg		<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg		38	67	25	99	39
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg		4	7	2	11	3
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg		42	74	27	110	42
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg		<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg		<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg		<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg		<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg		<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg		<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg		<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg		<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA451_231023	0990_BIOAFA452_231023	0990_BIOAFA453_231023	0990_BIOAFA454_231023	0990_BIOAFA455_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-011	ES2337465-012	ES2337465-013	ES2337465-014	ES2337465-015
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ Sum of PFAS	----	1	µg/kg		**42**	**74**	**27**	**110**	**42**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**96.9**	**95.4**	**119**	**71.8**	**96.2**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA451_231023	0990_BIOAFA452_231023	0990_BIOAFA453_231023	0990_BIOAFA454_231023	0990_BIOAFA455_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-011	ES2337465-012	ES2337465-013	ES2337465-014	ES2337465-015
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		107	107	106	108	101

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)			Sample ID	0990_BIOAFA456_231023	0990_BIOAFA457_231023	0990_BIOAFA458_231023	0990_BIOAFA459_231023	0990_BIOAFA460_231023
			Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2337465-016	ES2337465-017	ES2337465-018	ES2337465-019	ES2337465-020
				Result	Result	Result	Result	Result
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	Fillet	Fillet	Fillet	Fillet	Prawn
ø Weight of Sample Prepared	----	0.1	g	30.8	74.3	70.1	41.5	52.7
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	<1	<1	3
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	72	60	59	130	62
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	10	10	7	12	8
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	82	70	66	142	70
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA456_231023	0990_BIOAFA457_231023	0990_BIOAFA458_231023	0990_BIOAFA459_231023	0990_BIOAFA460_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-016	ES2337465-017	ES2337465-018	ES2337465-019	ES2337465-020
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**82**	**70**	**66**	**142**	**73**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**105**	**85.3**	**91.6**	**114**	**106**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA456_231023	0990_BIOAFA457_231023	0990_BIOAFA458_231023	0990_BIOAFA459_231023	0990_BIOAFA460_231023
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-016	ES2337465-017	ES2337465-018	ES2337465-019	ES2337465-020
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		104	101	113	111	108

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)			Sample ID	0990_BIOAFA461_231023	0990_BIOAFA462_231023	0990_BIOAFA463_231024	0990_BIOAFA464_231024	0990_BIOAFA465_231024
			Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2337465-021	ES2337465-022	ES2337465-023	ES2337465-024	ES2337465-025
				Result	Result	Result	Result	Result
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	TIGER PRAWN	TIGER PRAWN	FILLET	FILLET	FILLET
ø Weight of Sample Prepared	----	0.1	g	69.5	40.7	114	48.7	52.8
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	12	94	31	39	41
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	1	15	4	4	5
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	13	109	35	43	46
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA461_231023	0990_BIOAFA462_231023	0990_BIOAFA463_231024	0990_BIOAFA464_231024	0990_BIOAFA465_231024
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-021	ES2337465-022	ES2337465-023	ES2337465-024	ES2337465-025
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**13**	**109**	**35**	**43**	**46**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**96.0**	**114**	**118**	**81.2**	**102**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA461_231023	0990_BIOAFA462_231023	0990_BIOAFA463_231024	0990_BIOAFA464_231024	0990_BIOAFA465_231024
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-021	ES2337465-022	ES2337465-023	ES2337465-024	ES2337465-025
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		105	114	115	101	112

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)			Sample ID	0990_BIOAFA466_231024	0990_BIOAFA467_231024	0990_BIOAFA468_231024	0990_BIOAFA469_231024	0990_BIOAFA470_231024
			Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2337465-026	ES2337465-027	ES2337465-028	ES2337465-029	ES2337465-030
				Result	Result	Result	Result	Result
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	FILLET	FILLET	FILLET	FILLET	FILLET
ø Weight of Sample Prepared	----	0.1	g	39.5	74.7	40.6	64.5	61.3
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	41	27	68	40	92
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	5	<1	5	2	8
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	46	27	73	42	100
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA466_231024	0990_BIOAFA467_231024	0990_BIOAFA468_231024	0990_BIOAFA469_231024	0990_BIOAFA470_231024
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-026	ES2337465-027	ES2337465-028	ES2337465-029	ES2337465-030
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**46**	**27**	**73**	**42**	**100**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**101**	**93.7**	**110**	**110**	**90.8**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA466_231024	0990_BIOAFA467_231024	0990_BIOAFA468_231024	0990_BIOAFA469_231024	0990_BIOAFA470_231024
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-026	ES2337465-027	ES2337465-028	ES2337465-029	ES2337465-030
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		114	125	114	111	120

Analytical Results

Sub-Matrix: BIOTA
(Matrix: BIOTA)

Compound	CAS Number	LOR	Unit	Sample ID	0990_BIOAFA471_231024	0990_BIOAFA472_231024	0990_BIOAFA473_231024	0990_BIOAFA474_231024	0990_BIOAFA475_231024
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
					ES2337465-031	ES2337465-032	ES2337465-033	ES2337465-034	ES2337465-035
					Result	Result	Result	Result	Result
Biota Sample Pre-Preparation									
ø Sample Description	----	-	--		**FILLET**	**FILLET**	**FILLET**	**FILLET**	**FILLET**
ø Weight of Sample Prepared	----	0.1	g		**56.4**	**28.3**	**47.6**	**23.1**	**33.8**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg		<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg		<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg		**68**	**118**	**46**	**84**	**108**
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg		**6**	**10**	**4**	**8**	**6**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg		**74**	**128**	**50**	**92**	**114**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg		<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg		<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg		<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg		<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg		<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg		<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg		<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg		<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA471_231024	0990_BIOAFA472_231024	0990_BIOAFA473_231024	0990_BIOAFA474_231024	0990_BIOAFA475_231024
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-031	ES2337465-032	ES2337465-033	ES2337465-034	ES2337465-035
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**74**	**128**	**50**	**92**	**114**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**95.8**	**98.4**	**85.8**	**111**	**111**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA471_231024	0990_BIOAFA472_231024	0990_BIOAFA473_231024	0990_BIOAFA474_231024	0990_BIOAFA475_231024
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-031	ES2337465-032	ES2337465-033	ES2337465-034	ES2337465-035
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		101	110	118	104	106

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)			Sample ID	0990_BIOAFA476_231024	0990_BIOAFA477_231024	0990_BIOAFA478_231024	0990_BIOAFA479_231024	0990_BIOAFA480_231024
			Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2337465-036	ES2337465-037	ES2337465-038	ES2337465-039	ES2337465-040
				Result	Result	Result	Result	Result
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	FILLET	FILLET	FILLET	FILLET	FILLET
ø Weight of Sample Prepared	----	0.1	g	29.6	31.3	54.8	51.1	30.8
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	1	<1	<1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	164	77	128	138	128
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	10	9	16	12	6
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	174	86	144	150	134
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA476_231024	0990_BIOAFA477_231024	0990_BIOAFA478_231024	0990_BIOAFA479_231024	0990_BIOAFA480_231024
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-036	ES2337465-037	ES2337465-038	ES2337465-039	ES2337465-040
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**174**	**87**	**144**	**150**	**134**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**116**	**96.0**	**86.8**	**112**	**105**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA476_231024	0990_BIOAFA477_231024	0990_BIOAFA478_231024	0990_BIOAFA479_231024	0990_BIOAFA480_231024
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-036	ES2337465-037	ES2337465-038	ES2337465-039	ES2337465-040
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		114	104	110	103	106

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)			Sample ID	0990_BIOAFA481_231024	0990_BIOAFA482_231024	0990_BIOAFA483_231024	0990_BIOAFA484_231024	0990_QC148_231023
			Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2337465-041	ES2337465-042	ES2337465-043	ES2337465-044	ES2337465-046
				Result	Result	Result	Result	Result
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	Fillet	Prawns	Prawns	Prawns	Fillet
ø Weight of Sample Prepared	----	0.1	g	20.3	32.2	26.8	27.3	86.9
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	1	1	1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	181	28	15	25	26
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	8	1	1	2	3
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	189	29	16	27	29
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA481_231024	0990_BIOAFA482_231024	0990_BIOAFA483_231024	0990_BIOAFA484_231024	0990_QC148_231023
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-041	ES2337465-042	ES2337465-043	ES2337465-044	ES2337465-046
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**189**	**30**	**17**	**28**	**29**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**108**	**91.8**	**100**	**95.2**	**80.9**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_BIOAFA481_231024	0990_BIOAFA482_231024	0990_BIOAFA483_231024	0990_BIOAFA484_231024	0990_QC148_231023
				Sampling date / time	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-041	ES2337465-042	ES2337465-043	ES2337465-044	ES2337465-046
					Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued									
13C8-PFOA	----	1	%		111	91.5	106	107	98.2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_QC149_231023	0990_QC150_231023	0990_QC151_231023	0990_QC152_231024	0990_QC153_231024
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-047	ES2337465-048	ES2337465-049	ES2337465-050	ES2337465-051
					Result	Result	Result	Result	Result
Biota Sample Pre-Preparation									
ø Sample Description	----	-	--		Fillet	Fillet	Fillet	Fillet	Fillet
ø Weight of Sample Prepared	----	0.1	g		74.3	61.2	42.5	105	38.5
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg		<1	<1	<1	<1	<1
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg		<1	<1	<1	<1	<1
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg		97	30	8	24	44
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg		13	3	1	2	4
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg		110	33	9	26	48
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg		<2	<2	<2	<2	<2
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg		<5	<5	<5	<5	<5
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg		<2	<2	<2	<2	<2
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg		<1	<1	<1	<1	<1
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg		<1	<1	<1	<1	<1
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg		<1	<1	<1	<1	<1
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg		<1	<1	<1	<1	<1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg		<1	<1	<1	<1	<1
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg		<2	<2	<2	<2	<2
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	0990_QC149_231023	0990_QC150_231023	0990_QC151_231023	0990_QC152_231024	0990_QC153_231024
				Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	24-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-047	ES2337465-048	ES2337465-049	ES2337465-050	ES2337465-051
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	<2
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	<5
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	<5
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	<2
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	<2
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	<1
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	<1	<1	<1	<1
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	<2	<2	<2	<2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	<2
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	<2
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	<2
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**110**	**33**	**9**	**26**	**48**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**103**	**84.4**	**105**	**96.2**	**90.3**
13C8-PFOA	----	1	%		**107**	**96.5**	**110**	**102**	**90.9**

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)			Sample ID	0990_QC154_231024	0990_QC155_231024	----	----	----
			Sampling date / time	23-Oct-2023 00:00	24-Oct-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2337465-052	ES2337465-053	--------	--------	--------
				Result	Result	----	----	----
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	**Fillet**	**Fillet**	----	----	----
ø Weight of Sample Prepared	----	0.1	g	**41.8**	**36.2**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	----	----	----
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	**35**	**40**	----	----	----
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	**4**	**4**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	**39**	**44**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	<1	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	<1	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	<1	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg	<2	<2	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg	<2	<2	----	----	----

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)			Sample ID	0990_QC154_231024	0990_QC155_231024	----	----	----
			Sampling date / time	23-Oct-2023 00:00	24-Oct-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2337465-052	ES2337465-053	--------	--------	--------
				Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	<2	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg	<5	<5	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg	<5	<5	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	<2	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	<2	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	<2	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	<1	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	<1	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	<2	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	<2	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	<2	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	<2	----	----	----
EP231P: PFAS Sums								
^ **Sum of PFAS**	----	1	µg/kg	**39**	**44**	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	1	%	**88.4**	**93.7**	----	----	----
13C8-PFOA	----	1	%	**95.8**	**102**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC147_231024	0990_QC308_231025	0990_QC507_231027	0990_QC508_231025	0990_SW151_231024
				Sampling date / time	24-Oct-2023 00:00	25-Oct-2023 00:00	27-Oct-2023 00:00	25-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-045	ES2337465-054	ES2337465-055	ES2337465-056	ES2337465-057
					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		**0.09**	<0.01	<0.01	<0.01	**0.10**
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		**0.10**	<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		<0.1	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC147_231024	0990_QC308_231025	0990_QC507_231027	0990_QC508_231025	0990_SW151_231024
				Sampling date / time	24-Oct-2023 00:00	25-Oct-2023 00:00	27-Oct-2023 00:00	25-Oct-2023 00:00	24-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2337465-045	ES2337465-054	ES2337465-055	ES2337465-056	ES2337465-057
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**0.19**	<0.01	<0.01	<0.01	**0.20**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.19**	<0.01	<0.01	<0.01	**0.20**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.19**	<0.01	<0.01	<0.01	**0.20**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.7**	**92.4**	**95.7**	**94.6**	**99.1**
13C8-PFOA	----	0.02	%		**97.1**	**99.0**	**101**	**97.8**	**98.8**

Surrogate Control Limits

Sub-Matrix: **BIOTA**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	50	130
13C8-PFOA	----	50	130

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

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

NATA

REPORT OF ANALYSIS

Report No. RN1410901

Client	[redacted]	**Job No.**	: AECO06/231107/1
		Quote No.	: QT-02232
		Order No.	: 60612561/3_1
		Date Received	: 07-NOV-2023
Attention		**Sampled By**	: CLIENT
Project Name : NT_0990_PFASOMP_23			
Your Client Services Manager : [redacted]		**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/023331	0990_QC201_231024	WATER 24 OCT 2023

Lab Reg No.		N23/023331				
Date Sampled		24-OCT-2023				
	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	0.011				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	0.013				NR70
PFHxS (355-46-4)	ug/L	0.11				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	0.014				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.		N23/023331				
Date Sampled		24-OCT-2023				
	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)	%	99				NR70
PFPeA (Surrogate Recovery)	%	95				NR70
PFHxA (Surrogate Recovery)	%	102				NR70
PFHpA (Surrogate Recovery)	%	102				NR70
PFOA (Surrogate Recovery)	%	100				NR70
PFNA (Surrogate Recovery)	%	95				NR70
PFDA (Surrogate Recovery)	%	85				NR70
PFUdA (Surrogate Recovery)	%	66				NR70
PFDoA (Surrogate Recovery)	%	53				NR70
PFTeDA (Surrogate Recovery)	%	51				NR70
PFHxDA (Surrogate Recovery)	%	70				NR70
FOUEA (Surrogate Recovery)	%	72				NR70
PFBS (Surrogate Recovery)	%	108				NR70
PFHxS (Surrogate Recovery)	%	107				NR70
PFOS (Surrogate Recovery)	%	102				NR70
PFOSA (Surrogate Recovery)	%	69				NR70
N-MeFOSA (Surrogate Recovery)	%	44				NR70
N-EtFOSA (Surrogate Recovery)	%	41				NR70
N-MeFOSAA (Surrogate Recovery)	%	55				NR70
N-EtFOSAA (Surrogate Recovery)	%	55				NR70
N-MeFOSE (Surrogate Recovery)	%	53				NR70
N-EtFOSE (Surrogate Recovery)	%	45				NR70
4:2 FTS (Surrogate Recovery)	%	115				NR70
6:2 FTS (Surrogate Recovery)	%	99				NR70
8:2 FTS (Surrogate Recovery)	%	91				NR70
8:2 diPAP (Surrogate Recovery)	%	63				NR70
Dates						
Date extracted		13-NOV-2023				
Date analysed		13-NOV-2023				

N23/023331
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.

[redacted]

REPORT OF ANALYSIS

Surrogate recoveries low for selected analytes - PFAS LORs not raised since S/N >10.

[redacted]

NATA
WORLD RECOGNISED ACCREDITATION

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: *RN1410884*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: Client Services

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

SAMPLE DETAILS

NMI Job Name: AECO06/231107/1

Total No. of Samples: 5

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N23/023331	14-NOV-2023	0990_QC201_231024	WATER 24 OCT 2023
N23/023332	5-DEC-2023	0990_QC202_231023	WATER 23 OCT 2023
N23/023333	5-DEC-2023	0990_QC203_231023	WATER 23 OCT 2023
N23/023334	5-DEC-2023	0990_QC204_231024	WATER 24 OCT 2023
N23/023335	5-DEC-2023	0990_QC205_231024	WATER 24 OCT 2023

SAMPLE RECEIVED CONDITION

Date samples received:	7-NOV-2023
Sample received in good order:	Yes
NMI Quotation no. provided:	60612561/3.1
Client purchase order number:	60612561/3_1
Temperature of samples:	Frozen
Comments:	
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/231107/1 **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	110	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	107	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	106	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	107	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	112	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	102	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	116	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	123	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	122	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	115	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	109	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	104	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	101	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	106	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	104	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	107	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	119	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	121	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	113	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	115	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	119	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	117	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	117	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	106	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	106	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	112	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:

Prepared for
Department of Defence Directorate of PFAS Remediation Environment and Engineering Branch
ABN: 68706814312

AECOM

Start of Wet Season Sampling Events Factual Report 2024

PFAS OMP - RAAF Base Tindal

03-Jul-2024
PFAS Ongoing Monitoring Plan

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Delivering a better world

Start of Wet Season Sampling Events Factual Report 2024

PFAS OMP - RAAF Base Tindal

Client: Department of Defence Directorate of PFAS Remediation Environment and Engineering Branch

ABN: 68706814312

Prepared by

,

03-Jul-2024

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

Quality Information

Document Start of Wet Season Sampling Events Factual Report 2024

Date 03-Jul-2024

Originator [redacted]

Checker/s

Verifier/s

Revision History

Rev	Revision Date	Details	Approved	
			Name/Position	Signature
0	03-Jul-2024	Final	[redacted] Principal Environmental Scientist	[redacted]

Table of Contents

Abbreviations

Abbreviation	Term
AECOM	AECOM Australia Pty Ltd
ALS	ALS Environmental Pty Ltd
ANZG	Australian and New Zealand Guidelines
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved Oxygen
DoH	Department of Health
DQO	Data quality objectives
DQI	Data quality indicators
EC	Electrical Conductivity
HEPA	Heads of Environment Protection Authority
LOR	Limit of Reporting
MW	Monitoring Well
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NMI	National Measurement Institute
NSW	New South Wales
OMP	Ongoing Monitoring Plan
PFAS	Per- and poly-fluoroalkyl substances
PFHxS	Perfluorohexanesulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality Assurance and Quality Control
RAAF	Royal Australian Air Force
RPD	Relative percentage difference
SAQP	Sampling and Analysis Quality Plan

Abbreviation	Term
SW	Surface Water

List of Units

Unit	Definition	Unit	Definition
^{o}C	Degrees Celsius	mg	Milligrams
cm	Centimetre	mV	Millivolts
L	Litre	µg	Micrograms
m	Metre	µS	Microsiemens
km	Kilometre	g	gram
mAHD	metres Australian Height Datum	mbTOC	metres below top of casing

1.0 Introduction

1.1 Preamble

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement the per- and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP) outlined in the PFAS Management Area Plan (PMAP) (Department of Defence, 2021a) at RAAF Base Tindal (the 'Base') in the Northern Territory. The location of the Base and Management Areas are shown in Appendix A - Figure 1.

The primary purpose of the OMP is to monitor changes to the PFAS impact in groundwater and surface water pathways associated with the key sources of PFAS as initially identified and assessed through the detailed site investigation phase of works (Coffey, 2018a) (Coffey, 2018b). Changes may result from the specific or cumulative impact of remediation or containment actions, existing transportation trends, and changes to hydrogeology or climatic conditions. These changes to PFAS contamination originating from Defence property can inform risk management decisions by Defence and Territory agencies to protect human health and the environment.

The monitoring program at the Base includes a regime of groundwater, surface water and biota sampling to evaluate these changes in the long term, to enable Defence to maintain an up-to-date understanding of temporal and spatial distribution, concentration, and transport of PFAS contaminants.

The most recent PFAS Ongoing Monitoring Plan approved in October 2021, that is covered within the PMAP (Department of Defence, 2021a), outlines the requirement to conduct biota sampling (once per year), groundwater sampling for private bores (monthly during the wet season and once during the dry season), annual or biannual monitoring of other groundwater locations on and off-Base, and surface water sampling (up to four times a year) as presented in Table 1 below.

Table 1 Sampling schedule with start of wet season sampling highlighted in green.

<table>
<tr><th rowspan="3">Sampling</th><th colspan="6">Wet Season</th><th colspan="6">Dry Season</th></tr>
<tr><th colspan="2">Early</th><th colspan="2">Mid</th><th colspan="2">Late</th><th colspan="2">Early</th><th colspan="2">Mid</th><th colspan="2">Late</th></tr>
<tr><th>Nov-23</th><th>Dec-23</th><th>Jan-24</th><th>Feb-24</th><th>Mar-24</th><th>Apr-24</th><th>May-24</th><th>Jun-24</th><th>Jul-24</th><th>Aug-24</th><th>Sep-24</th><th>Oct-24</th></tr>
<tr><td rowspan="4">Groundwater</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td></td><td></td><td></td><td>Once in Dry</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Annual</td></tr>
<tr><td></td><td></td><td></td><td colspan="2">Biannual</td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Biannual</td></tr>
<tr><td rowspan="4">Surface Water</td><td></td><td></td><td>Quarterly</td><td></td><td></td><td>Quarterly</td><td></td><td></td><td>Quarterly</td><td></td><td></td><td>Quarterly</td></tr>
<tr><td></td><td colspan="2">Twice in Wet Season</td><td colspan="2">Twice in Wet Season</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Annual</td></tr>
<tr><td></td><td></td><td></td><td colspan="2">Biannual</td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Biannual</td></tr>
<tr><td>Aquatic Biota</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Annual</td></tr>
</table>

1.2 Objectives

The purpose of this factual report is to summarise the scope of works and findings from the wet season sampling works conducted between November 2023 through to January 2024. These works included:

- 'Twice in the wet season' (November 2023) and quarterly (January 2024) surface water sampling in accordance with the Sampling, Analysis and Quality Plan (SAQP) Revision 5 (AECOM, 2023a) and Revision 6 (AECOM, 2023b) respectively.
- 'Monthly in the wet season' groundwater sampling events in November 2023 in accordance with Revision 5 SAQP (AECOM, 2023a), and the December 2023 and January 2024 sampling events in accordance with Revision 6 SAQP (AECOM, 2023b).

This report has been prepared in accordance with the Defence's PFAS OMP Factual Report Guidance, (Department of Defence, 2021b).

An ongoing monitoring report is to be subsequently developed for the purpose of assessing the data collected during the discrete monitoring events completed over the 12-month period within which the works detailed herein fall and will include assessment of environmental variability and statistically significant trends in PFAS concentrations.

2.0 Scope of Work

2.1 Overarching Scope

The groundwater sampling and surface water sampling works described herein were completed in general accordance with the SAQPs, Revision 5 (AECOM, 2023a) and Revision 6 (AECOM, 2023b). Prior to sampling, the plans were reviewed to ensure compliance with the following:

- the OMP (Department of Defence, 2021a)
- Heads of the Environment Protection Authority (HEPA), PFAS National Environmental Management Plan (NEMP 2.0) (HEPA, 2020)
- National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013 (ASC NEPM, 1999)
- Defence Routine Environment Water Quality Monitoring Manual (Department of Defence, 2021c)
- AS/NZ 5667:1998 Water quality – Sampling (AS/NZS, 1998)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018).

The scope of works completed for the wet season sampling events under two versions of the SAQP, Version 5 (AECOM, 2023a) and Version 6 (AECOM, 2023b) and included:

- Collection of samples from six ‘twice in the wet season’ surface water locations in November 2023 (AECOM, 2023a).
- Collection of groundwater samples from 18 private property locations, inclusive of three locations that were added to the SAQP, in accordance with the ‘monthly in the wet’ sampling scope in November 2023 (AECOM, 2023a).
- Collection of groundwater samples from 17 private property locations in accordance with the ‘monthly in the wet’ sampling scope (AECOM, 2023b) in December 2023.
- Collection of samples from three ‘quarterly’ surface water locations in January 2024 (AECOM, 2023b).
- Collection of groundwater samples from 15 private property locations in accordance with the ‘monthly in the wet’ sampling scope in January 2024 (AECOM, 2023b).
- Collection of relevant quality assurance and quality control (QA/QC) samples in accordance with the relevant SAQP at the time of sampling.
- Analysis of samples included the 28 analyte PFAS-suite (full suite) at the standard limit of reporting (LOR).
- Data management of the OMP field and laboratory data in the Defence ESdat database.
- Preparation of this Start of Wet Season Sampling Event Factual Report.

2.2 Monitoring Locations

The monitoring locations outlined within the relevant SAQPs (AECOM, 2023a) (AECOM, 2023b) for the surface water and groundwater wet season sampling events are tabulated below. Deviations from the planned sampling are highlighted in **bold** and detailed in Section 2.3 below.

Table 2 'Twice in the west season' surface water sampling locations – November 2023 (Figure 2 in Appendix A)

Area	Description	SAQP Locations
On-Base	Tindal Creek – Base Boundary	SW016, SW021, SW350
	Runway drain	SW188, SW049
	Drain off Fire Station Handstand	SW140

Table 3 Quarterly surface water sampling locations – January 2024 (Figure 2 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Katherine YMCA Pool	OTH008
	Katherine Hot Springs	SW153
	Katherine River	SW108

Table 4 'Monthly in the wet season' private property bore groundwater sampling locations – November 2023, December 2023 and January 2024 (Figure 3 in Appendix A)

Area	Description	SAQP Locations
Off-Base - Private	Shadforth Road	**POT114, OTH117**[1], POT120, **POT130**, POT124,
	Zimin Drive	POT112, POT113, POT121**,** POT125, **POT126**, POT127, POT128, POT129, OTH118, OTH119[1], POT131
	Tokmakoff Road	**POT198**, **POT201**

1 Not presented in Appendix A – Figure 3 for privacy reasons.

2.3 Deviations from the SAQP

There were no deviations from the SAQP (AECOM, 2023a) (AECOM, 2023b) for the quarterly and 'twice in the wet season' surface water sampling events.

It is worth nothing that the November 2023, December 2023 and January 2024 surface water and groundwater monitoring events were completed in conjunction with ad-hoc groundwater and soil sampling events which were reported separately. However, these ad-hoc locations (POT224 – POT235 and OTH129) may be present in the laboratory reports and field logs as the data validation has been assessed as an all-inclusive event.

The November 2023, December 2023 and January 2024 monthly in the wet season groundwater events included some deviations from the SAQP (AECOM, 2023a), (AECOM, 2023b) as outlined in Table 5 below.

Table 5 Deviations from the SAQP during the 'monthly in the wet season' groundwater sampling events.

SAQP	Deviation	Impact on OMP
November 2023 Event (AECOM, 2023a)		
Collection of 15 groundwater samples	Collection of three groundwater samples not within scope of SAQP when sampling occurred: • POT130 • POT198 • POT201	No impact – will add to overall understanding of PFAS concentrations within the Management Area and the locations are included in the SAQP revision as OMP sampling locations (monthly during the wet season and once per dry season).
December 2023 Event (AECOM, 2023b)		
Collection of 18 groundwater samples	One location was not sampled: • POT126 was not able to be sampled due to the property having been sold since the last sampling event and therefore access agreement was deemed voided.	Minor impact – historical results have all reported below the laboratory level of reporting at this location and therefore human health risks are expected to remain low.
January 2023 Event (AECOM, 2023b)		
Collection of 18 groundwater samples	Three locations were not sampled: • POT126 was not able to be sampled due to the property having been sold and therefore access agreement was deemed voided. • Appointment was declined for OTH117. • Appointment could not be confirmed for POT114.	Minor impact – historical results at POT126 have all reported below the laboratory level of reporting and therefore human health risks are expected to remain low. Appointments were not confirmed for OTH117 and POT114 due to owners being away and therefore human health risks are expected to remain low. Data gaps may become a concern if these locations cannot be sampled in the coming wet season events where PFAS concentration may increase with water levels.

3.0 Sampling Methodology

The methodologies adopted for the groundwater and surface water were in general accordance with the applicable revisions of the SAQP (AECOM, 2023a) and (AECOM, 2023b) noting that deviations are captured in Section 2.3 above.

Table 6 Surface water and groundwater sampling methodology

Item	Details
Groundwater and surface water methodology	
Surface water sampling	Surface water samples were collected from either mid-way through the water column or approximately 0.5 m below the surface, or mid-column for shallow sampling locations, with care taken to minimise collection of sediment or floating materials in the samples. At each location, laboratory supplied bottles were lowered into the water using a decontaminated aluminium sampling pole with the cap immediately applied once the container was full and retrieved from the water. Surface water sampling results are presented in Appendix B – Table 1 with analytical results presented in Table 2.
Groundwater sampling	All groundwater samples were obtained from extraction bores located on private properties. These samples were collected from existing taps on the headworks of the extraction bore. Samples were collected from the 'first-flush' from the tap. Groundwater analytical results are presented in Appendix B – Table 4.
Water quality parameters	Water quality parameters were recorded ex-situ, post-sample collection, using a YSI Pro Water Quality Meter. Water quality measurements recorded consisted of the following: temperature (°C), electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (reported as redox), and pH. Observations of odour, colour and clarity (low, moderate or high turbidity) of the samples collected were recorded at each location. Refer to Appendix C sampling logs and Appendix G for calibration records of the water quality meter.
QA/QC samples	For water sampling, field QA/QC samples included intra-laboratory duplicate and inter-laboratory duplicates at a rate of 1 in 10 primary samples, rinsate at a rate of 1/day where decontaminated equipment was used, field blank at a rate of 1/sampling day and trip blank samples at a rate of 1/cooler. Refer to Section 3.2 and for assessment of QA/QC sample data and full data validation report in Appendix D.
Sample analysis	Samples were submitted to the primary and secondary laboratories for PFAS analysis. ALS Environmental (ALS) Sydney, New South Wales (NSW) 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 analyses were certified by the National Association of Testing Authorities (NATA). Chain of Custody (COC) forms are presented in Appendix E and laboratory certificates are presented in Appendix F.

3.1 Adopted screening criteria

Screening criteria were selected on the basis of national guidance in the form of the PFAS National Environmental Management Plan, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. Guidance documents used to assess the dataset includes the following:

- Department of Health (DoH) Health Based Guidance Values for PFAS for use in site investigations in Australia (Department of Health, 2019)
- Heads of the Environment Protection Authority (HEPA), PFAS National Environmental Management Plan (PFAS NEMP 2.0) (HEPA, 2020)
- National Health and Medical Research Council (NHMRC), Guidance on PFAS in Recreational Water (NHMRC, 2019)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, (ASC NEPM, 1999).

Table 7 Summary of adopted screening criteria for groundwater and surface water

Pathway	Compound	Criteria	Comment/reference
Human health receptors			
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	These values are from the PFAS NEMP 2.0 (HEPA, 2020).
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	These values are from PFAS NEMP2.0 (HEPA, 2020).
	PFOA	10 µg/L	
Ecological receptors			
Freshwater - 99% species protection	PFOS	0.00023 µg/L	These values are from the PFAS NEMP 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.
	PFOA	19 µg/L	

3.2 Data quality objectives and data validation

The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQPs (AECOM, 2023a) (AECOM, 2023b).

The data validation report is provided in Appendix D.

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below.

November 2023 event:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) in all primary samples during the November 2023 sampling except for primary locations POT113 and POT120. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

December 2023 event:

- The potential exists for concentrations of PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) in all primary samples, with the exception of primary locations POT112, POT113, POT120, POT121 and ad-hoc location POT232, and should be taken into consideration when interpreting results.

January 2024 event:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for all primary results with the exception of OTH008, POT112, POT113, POT120, POT121 and ad-hoc location POT235 that reported PFOS concentrations above the LOR and therefore above the criteria. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

The November 2023, December 2023 and January 2024 surface water and groundwater monitoring events were completed in conjunction with ad-hoc groundwater and soil sampling events which were reported separately. Parent samples for the field intra-laboratory and inter-laboratory duplicates reflect these ad-hoc locations with sample IDs being present in the laboratory reports. The data validation reports have been assessed as an all-inclusive event.

Data validation procedures employed in the assessment of the field and laboratory QA/QC data are indicative that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report. An examination of sampling analysis data compared to the data validation findings did not result in any results that required flagging for potential inaccuracies.

All data collected during this event has been reviewed and uploaded to the Defence ESdat database in accordance with Defence Contamination Management Manual (DCMM) (Department of Defence, 2021c) Annex L requirements.

4.0 Field observations and results

4.1 Surface water

4.1.1 Surface water field observations and measurements

Table 8 Surface water observations and field measurements for November 2023 and January 2024 sampling events.

Compound	Criteria
Fieldwork dates	The ‘twice in wet season’ surface water sampling event was completed on 13 November 2023. The quarterly surface water sampling event occurred on 16 January 2024.
Access and sample collection	All surface water sampling locations were accessible and able to be sampled during the November 2023 and January 2024 sampling events.
Field observations	**Twice in the wet season event November 2024:** Water within the Tindal Creek and on-Base drains was pooled or had low flow, was noted to be colourless, brown, pale brown in colour with low to high turbidity, no odour or sheen. SW021, located on-Base Tindal Creek, was noted to be brown with high turbidity, no odour or sheen. **Quarterly event January 2024:** Katherine River generally had moderate flows with high turbidity, no odour or sheen. The Katherine Town Pool and Hot Springs were noted to be colourless with low to no turbidity, no odour or chlorine odour (Katherine pool) and no sheen.
Surface water flow	The Katherine River level was recorded as being at approximately 7.644 m at the Katherine River Railway Bridge on 16 January 2024, recorded from Station G814001 (Northern Territory Department of Environment, Parks and Water Security, 2024).

Compound	Criteria
Water quality parameters	Stabilised water quality parameter readings are presented in Appendix B - Table 1 and are summarised below per event. Due to a data collection error, there are no water quality parameters for SW153. **Twice in the wet season event November 2023:** • DO ranged from 2.44mg/L (SW021) to 4.51mg/L (SW049) indicating highly oxygenated water. • EC ranged from 108.2 µS/cm (SW350) to 273.2 µS/cm (SW140) indicating freshwater conditions. • pH ranged from 7.01 (SW021) to 7.90 (SW016) indicating relatively neutral conditions. • Redox (corrected) ranged from 228.7 (SW049) to 254.2 mV (SW350) indicating oxidising conditions. **Quarterly event January 2024*:** • DO was 6.06 mg/L (SW108) indicating highly oxygenated water. • EC was 42.9 µS/cm at SW108 indicating freshwater conditions. • pH was 7.87 (SW108) indicating relatively neutral conditions. • Redox (corrected) was 324.6 mV (SW108) indicating oxidising conditions.

*OTH008 (Katherine Town Pool) was not included in the surface water field summary as the water is artificially chemically controlled. SW153 (Hot Springs) had no water quality parameters recorded due to a data collection error and is therefore also not included in summary above.

4.1.2 Surface water analytical results

The PFAS surface water analytical results from the 'twice in the wet season' sampling event in November 2023 and the quarterly sampling event in January 2024 are presented in Appendix B – Table 2.

During the November 2023 'twice in the wet season' sampling event, the Sum of PFHxS+PFOS concentrations were detected above the LOR and drinking water guidelines (HEPA, 2020) at all sampled locations. Concentrations of PFOS were also above the ecological freshwater species protection (99 %) guideline (HEPA, 2020) for all November 2023 samples. Concentrations of PFOA were below the LOR and therefore below the selected criteria at all locations with the exception of off-Base location SW021 and on-Base locations SW049 and SW140.

All locations sampled were below historical results with the exception of SW021 which reported a new historical maximum for PFOS concentrations (1.25 µg/L). The previous maximum was 1.10 µg/L in February 2018 and therefore within the same order of magnitude as historical results. There were no first-time detections above the LOR or new exceedances of the screening criteria in the dataset.

During the January 2024 quarterly sampling event, one (OTH008) of the three samples detected Sum of PFHxS+PFOS concentrations above the LOR, but below the human health guidelines. PFOS concentrations for OTH008 were also above the LOR and therefore above the ecological guideline. Concentrations of PFOA were below the LOR and therefore below the selected criteria at all locations. There were no first-time detections above the LOR or new exceedances of the screening criteria in the dataset.

4.2 Groundwater

4.2.1 Groundwater field observations and measurements

Table 9 Groundwater field observations and measurements

Compound	Observation and field measurements
Fieldwork dates	The three 'monthly in the wet season' groundwater sampling events were completed on: • 13 to 14 November 2023 • 12 to 13 December 2023 • 15 to 16 January 2024
Access and sample collection	**November 2023 event:** All locations for the 'monthly in the wet season' groundwater sampling events in November were accessed and sampled, with the addition of three groundwater samples which were subsequently added to the revised SAQP (AECOM, 2023b) in December 2023: • POT130 • POT198 • POT201 **December 2023 event:** One location for the 'monthly in the wet season' groundwater sampling event in December 2023 was not accessed and sampled: • Access agreement for POT126 not received. **January 2024 event:** Three locations for the 'monthly in the wet season' groundwater sampling event in January 2024 were not accessed and sampled: • Access agreement for POT126 not received. • Appointment was declined for POT117. • Appointment was not confirmed for POT114.

Compound	Observation and field measurements
Water quality parameters	Water quality measurements were taken during sample collection using a YSI Pro Water Quality Meter. Stabilised readings are presented in Appendix B –Table 3. **November 2023 event:** • DO ranged from 1.69 mg/L (POT114) to 4.12 mg/L (POT198) indicating oxygenated water conditions. • EC ranged from 739 µS/cm (POT121) to 859 µS/cm (POT127) indicating freshwater conditions . • pH ranged from 6.87 (POT113) to 7.65 (POT121) indicating near neutral conditions . • Redox (corrected) ranged from 260.8 mV (POT128) to 298.2 mV (POT198) indicating oxidising conditions. **December 2023 event:** • DO ranged from 1.29 mg/L (OTH118) to 4.87 mg/L (POT127) indicating oxygenated water conditions. • EC ranged from 635 µS/cm (POT131) to 999 µS/cm (POT201) indicating freshwater to brackish conditions. • pH ranged from 4.36 (POT120) to 7.54 (POT125) indicating acidic to neutral conditions. • Redox (corrected) ranged from 270.6 mV (POT121) to 328.3.1 mV (POT127) indicating oxidising conditions. **January 2024 event** • DO ranged from 0.77 mg/L (POT112) to 6.74 mg/L (POT198) indicating reducing to oxidising conditions. • EC ranged from 437 µS/cm (POT131) to 1,021 µS/cm (OTH113) indicating fresh to brackish water conditions. • pH ranged from 6.76 (POT113) to 7.81 (POT198) indicating near neutral conditions. • Redox (corrected) ranged from 73.5 mV (POT127) to 349.5 mV (POT198) indicating oxidising conditions.

4.2.2 Groundwater analytical results

The PFAS groundwater analytical results from the November 2023, December 2023 and January 2024 sampling events are presented in Appendix B – Table 4.

During the November 2023 ‘monthly in the wet season’ sampling event, three of 18 primary groundwater samples (POT112, POT113 and POT120) reported concentrations of Sum of PFHxS+PFOS above the laboratory LOR but below the human health criteria (HEPA, 2020). These three locations, POT112, POT113 and POT120, also reported above the ecological criterion (HEPA, 2020) for PFOS. No sampled reported detections of PFOA above the LOR and therefore all are below the selected PFOA criteria. There were no first-time detections above the LOR or new exceedances of the screening criteria in the datasets.

During the December 2023 ‘monthly in the wet season’ sampling event, four of 17 primary groundwater samples (POT112, POT113, POT120 and POT121) reported concentrations of Sum of PFHxS+PFOS above the laboratory LOR, with one of the four, POT113, exceeding the human health criterion for drinking water (HEPA, 2020) and all four reporting above the ecological criterion (HEPA, 2020). No samples reported detections of PFOA above the LOR and therefore all are below the selected criteria. There were no first-time detections above the LOR or new exceedances of the screening criteria in the datasets.

During the January 2024 ‘monthly in the wet season’ sampling event, four of the 15 groundwater samples (POT112, POT113, POT120 and POT121) reported concentrations of Sum of PFHxS+PFOS above the laboratory LOR, with POT112 and POT113 exceeding the human health criterion for drinking water (HEPA, 2020) and all four locations reporting above the ecological criteria (HEPA, 2020). All

results reported concentrations of PFOA below the LOR, with the exception of POT113 (0.01 µg/L) which still reported below the selected criteria. There were no first-time detections above the LOR or new exceedances of the screening criteria in the datasets.

5.0 Summary and next sampling events

5.1 Summary of monitoring events

Sampling for the PFAS OMP during the start of wet season included:

- Sampling of six 'twice in wet season' surface water locations in November 2023.
- Sampling of three 'quarterly' surface water locations in January 2024.
- Sampling of 18 'monthly in wet season' groundwater locations in November 2023.
- Sampling of 17 'monthly in wet season' groundwater locations in December 2023.
- Sampling of 15 'monthly in wet season' groundwater locations in January 2024.

Findings of the 'start of wet season' sampling events and recommended actions are summarised in Table 10 below.

Table 10 Summary of Sampling Event and Trigger Conditions

Item	Comment	Recommended Actions
Access to sampling locations	• All surface water locations for the 'twice in wet season' sampling event in November 2023 and the quarterly sampling event in January 2024 were accessed and sampled. • All groundwater locations for the 'monthly in wet season' sampling event in November 2023 were accessed and sampled. • All groundwater locations for the 'monthly in wet season' sampling event in December 2023 were accessed and sampled with the following exception: - POT126 was not able to be sampled due to the property having been sold, effectively voiding the access agreement. All groundwater locations for the 'monthly in wet season' sampling event in January 2024 were accessed and sampled with the following exceptions: - POT126 was not able to be sampled due to not having a signed access agreement received from the new owners. - Appointment was declined for OTH117. - Appointment was not confirmed for POT114.	Continue to seek access permission for monitoring location POT126. Continue to schedule POT114 and OTH117 for monthly sampling and gain approval for appointment time. Continue monitoring in accordance with the SAQP and PMAP.

Item	Comment	Recommended Actions
First-time detection of PFHxS+PFOS or PFOA in groundwater and surface water	No first-time detections above the limit of reporting for PFHxS+PFOS or PFOA in groundwater or surface water.	Continue monitoring in accordance with the SAQP and PMAP.
New exceedance of NEMP 2.0 (HEPA, 2020) drinking water guideline values in groundwater and surface water	No new exceedances of the drinking water guideline for PFOA or sum PFOS+PFHxS were reported in groundwater or surface water.	Continue monitoring in accordance with the SAQP and PMAP.
New exceedance of NEMP 2.0 (HEPA, 2020) recreational water guideline values in surface water	No new exceedances of the recreational guideline for PFOA or sum PFOS+PFHxS were reported in surface water.	Continue monitoring in accordance with the SAQP and PMAP.
New exceedance of NEMP 2.0 (HEPA, 2020) ecological water guideline value for surface water	No new exceedances of the ecological guideline PFOS and PFOA were reported in surface water, noting that the ecological guideline for PFOS is below the limit of reporting.	Continue monitoring in accordance with the SAQP and PMAP.
Sum of PFHxS+PFOS and/or sum of PFAS concentrations show an increasing trend in groundwater and surface water.	This will be evaluated in an ongoing monitoring interpretive report.	Continue monitoring in accordance with the SAQP and PMAP.
Sum of PFHxS+PFOS and/or sum of PFAS concentrations show a decreasing trend in groundwater and surface water.	This will be evaluated in an ongoing monitoring interpretive report.	Continue monitoring in accordance with the SAQP and PMAP.

5.2 Upcoming sampling events

The next surface water sampling event will be the second ‘twice in wet season’ season event, which will be rain dependent but nominally in March or April 2024. The next groundwater sampling event will be the ‘monthly in wet season’ groundwater sampling, which will occur each month from February 2024 through to April 2024.

Then next annual ongoing monitoring interpretive report will be completed after collection of all 2024 wet season data is completed.

6.0 References

AECOM, 2023a. *Sampling Analysis and Quality Plan - RAAF Base Tindal, Revision 5, September 2023,* s.l.: s.n.

AECOM, 2023b. *Sampling Analysis and Quality Plan - RAAF Base Tindal, Revision 6, December 2023.* s.l.:s.n.

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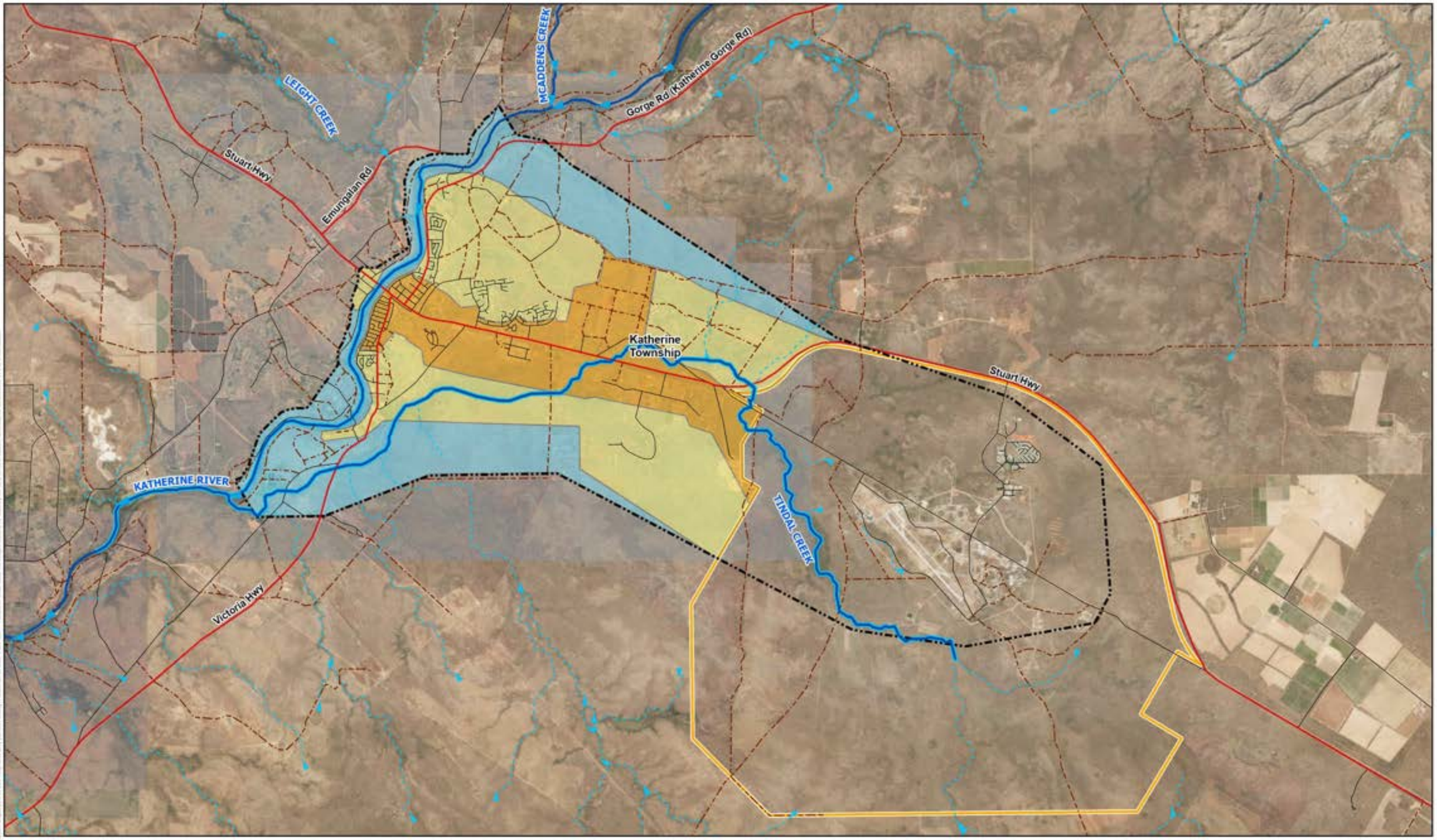
Northern Territory Department of Environment, Parks and Water Security, 2024. *https://water.nt.gov.au/.* [Online].

Appendix A

Figures



AECOM

N

DATUM GDA 1994, PROJECTION MGA ZONE 52

0 1 2 4

Kilometres

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LEGEND

- RAAF Base Tindal
- Surface Water Management Area
- Groundwater Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Zone 1 Groundwater > Recreational Water Criteria
- Zone 2 Groundwater > Drinking Water Criteria
- Zone 5 Groundwater < Criteria

Data sources:

Base Data: Imagery (c) NTLIS

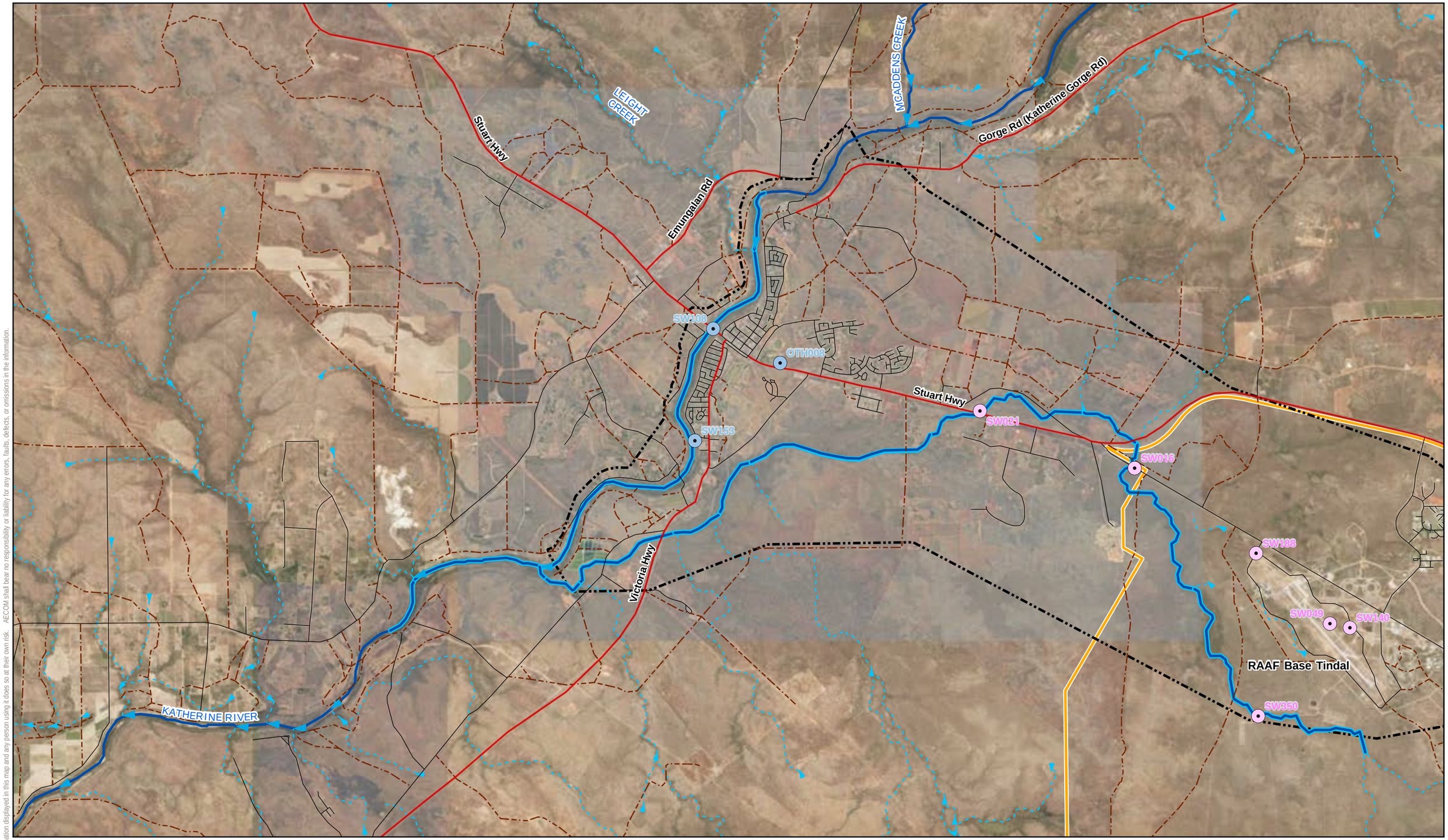
Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
START OF WET SEASON SAMPLING FACTUAL REPORT 2024

PFAS Management Area

PROJECT ID 606/12561
CREATED BY [redacted]
LAST MODIFIED [redacted]T.D.I 2024
VERSION 1

Figure 1

A3 size



AECOM

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DATUM GDA 1994, PROJECTION MGA ZONE 53

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Kilometres

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LEGEND

- Quarterly Surface Water Locations
- Wet Season Surface Water Locations (Twice)
- Surface Water Management Area
- Groundwater Management Area
- RAAF Base Tindal
- Source Area
- Highway
- Road
- Track
- Katherine River
- Drainage

Data sources:

Base Data: Imagery (c) NTLIS

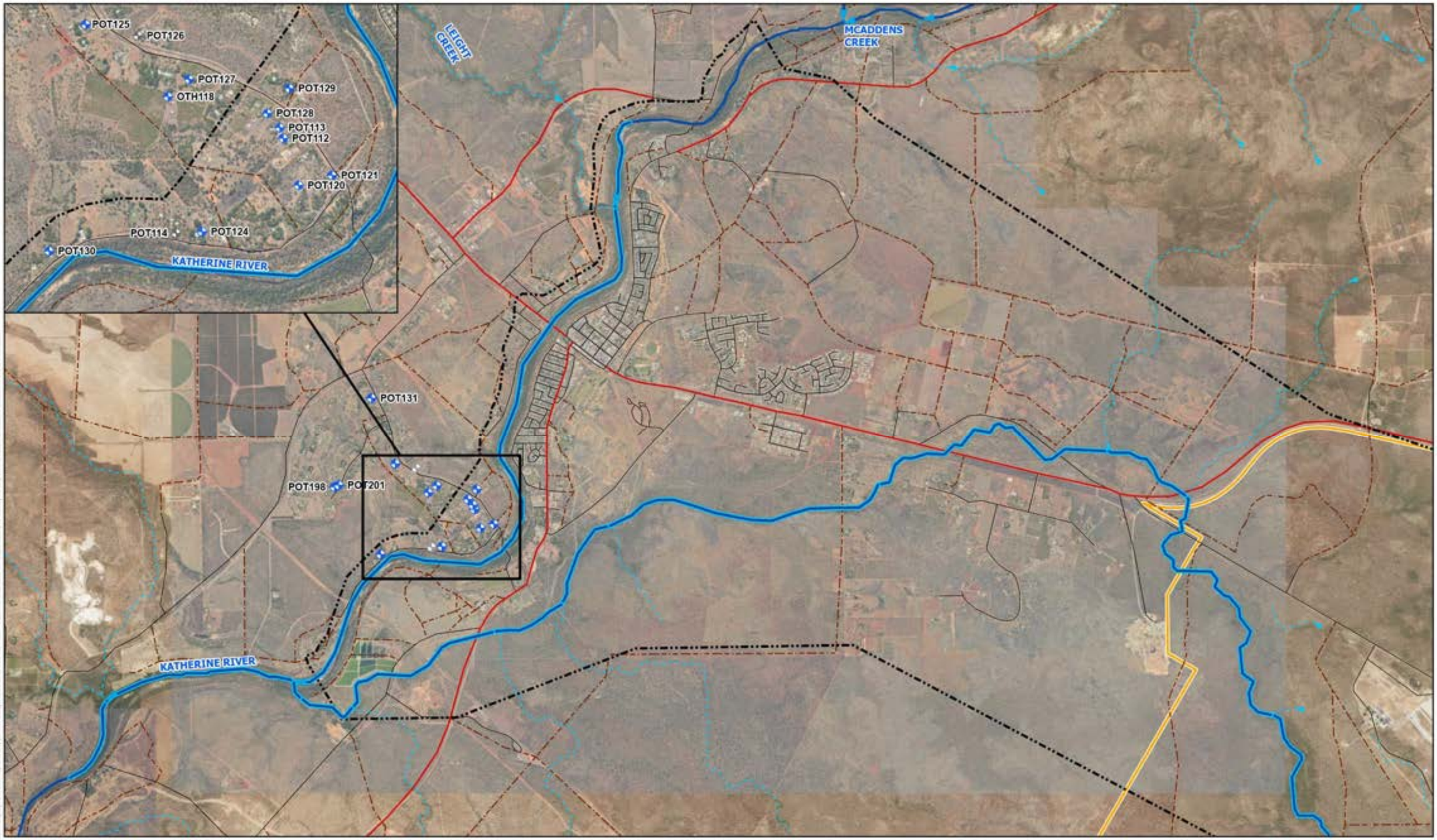
Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
START OF WET SEASON SAMPLING
FACTUAL
REPORT 2024

Surface Water Sampling Locations

PROJECT ID	60612561
CREATED BY	[redacted]
LAST MODIFIED	[redacted] FEB 2024
VERSION:	1

Figure
2

A3 size



AECOM

N

DATUM GDA 1994. PROJECTION MGA ZONE 53

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Kilometres

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LEGEND

- Private Property - Monthly in Wet Season Biannual
- Not sampled in all events
- Surface Water Management Area
- Groundwater Management Area
- RAAF Base Tindal
- Highway
- Road
- Track
- Katherine River
- Drainage

Note:
OTH117 and OTH119 are not shown on map for privacy reasons

Data sources

Base Data: Imagery (c) NTLIS

[redacted]

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
START OF WET SEASON SAMPLING
FACTUAL
REPORT 2024

Off-Base Groundwater Sampling Locations

PROJECT ID 60612561
CREATED BY [redacted]
LAST MODIFIED
VERSION

Figure 3

A3 size

Appendix B

Tables

Appendix B - Table 1
Water Quality Parameters
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Table 1 - Surface Water Quality Parameters

Frequency	Location ID	Date	DO (mg/L)	EC (µS/cm)	pH	Redox (mV)	Redox (corr) (mV)	Temp (°C)	Turbidity	Flow	Water Colour	Odour	Sheen	Sample Method
Twice in Wet Season	SW016	13/11/2023	2.81	212.8	7.90	32.1	232.1	31.8	Moderate	Pooled	Pale brown	No odour	No sheen	Grab
	SW021	13/11/2023	2.44	210.2	7.01	52.1	252.1	31.2	High	Low	Brown	No odour	No sheen	Grab
	SW049	13/11/2023	4.51	175.2	7.10	28.7	228.7	31.8	Moderate	Pooled	Pale brown	No odour	No sheen	Grab
	SW140	13/11/2023	4.41	273.2	7.21	33.1	233.1	31.9	Low	Low	Colourless	No odour	No sheen	Grab
	SW188	13/11/2023	2.77	209.2	7.79	41.2	241.2	31.7	High	Pooled	Pale brown	No odour	No sheen	Grab
	SW350	13/11/2023	3.03	108.2	7.31	54.2	254.2	31.2	Low	Low	Brown	No odour	No sheen	Grab
Quarterly	OTH008	16/01/2024	5.57	1513	8.05	-81.3	118.7	27.9	Low	Pooled	Colourless	Chlorine ofour	No sheen	Grab
	SW108	16/01/2024	6.06	42.9	7.87	124.6	324.6	27.9	High	Moderate	Pale brown	No odour	No sheen	Grab
	SW153	16/01/2024	No Parameters - data collection error							Moderate	Pale brown	No odour	No sheen	Grab

Notes:
NM: not measured - data collection error
mg/L: milligram per Litre
µS/cm: microsiemens per centimetre
mV: millivolts
°C: degrees celcius
Corrected redox = redox + 200
EC outlier for SW153

Appendix B - Table 2
Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table 2 - Surface Water Analytical Results

						PFAS Full Suite																													
						10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS	Sum of PFHxS and PFOS	Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluorohexane sulfonic acid (PFHxS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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					0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.02	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01	0.01	0.01	0.01	0.01
	PFAS NEMP 2020 Drinking Water																															**0.07**		**0.56**	
	PFAS NEMP 2020 Freshwater 99%																																*0.00023**	*19*	
	PFAS NEMP 2020 Recreational Water																															2		10	
	Location Code	**Sampled Date**	**Field ID**	**Lab Report Number**	**Sample Type**																														
Twice in Wet season	SW016	13/11/2023	0990_SW016_231113	ES2339515	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.31	**0.29**	*0.24*	<0.01	0.05
	SW016	13/11/2023	0990_QC100_231113	ES2339515	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.31	**0.29**	*0.24*	<0.01	0.05
	SW016	13/11/2023	0990_QC200_231113	RN1411892	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	0.3	**0.28**	*0.23*	<0.01	0.052
	SW021	13/11/2023	0990_SW021_231113	ES2339515	Primary	<0.05	<0.05	<0.05	1.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	0.1	<0.02	0.21	0.04	0.02	0.19	0.29	0.14	<0.02	0.02	0.16	<0.05	<0.02	0.12	3.97	**1.4**	*1.25*	0.24	0.15
	SW049	13/11/2023	0990_SW049_231113	ES2339515	Primary	<0.05	<0.05	0.11	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.16	0.1	0.03	<0.02	<0.02	0.06	0.05	0.38	<0.02	<0.02	0.13	0.18	<0.05	<0.02	<0.02	4.7	**3.4**	*2.66*	0.1	0.74
	SW140	13/11/2023	0990_SW140_231113	ES2339515	Primary	<0.05	<0.05	0.11	2.81	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	0.3	0.04	0.57	0.09	0.1	0.54	0.81	0.39	0.03	0.07	0.46	<0.05	<0.02	0.32	11.4	**4.1**	*3.67*	**0.7**	0.43
	SW188	13/11/2023	0990_SW188_231113	ES2339515	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.41	**0.41**	*0.38*	<0.01	0.03
	SW350	13/11/2023	0990_SW350_231113	ES2339515	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	**0.08**	*0.05*	<0.01	0.03
Quarterly	OTH008	16/01/2024	0990_OTH008_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06	*0.03*	<0.01	0.03
	SW108	16/01/2024	0990_SW108_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	*<0.01**	<0.01	<0.01
	SW153	16/01/2024	0990_SW153_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	*<0.01**	<0.01	<0.01

Notes:
µg/L: micrograms per litre
LOR: limit of reporting
* LOR is above guideline value
Denotes first time detection above LOR for Sum of PFHxS+PFOS or PFOA
Denotes new exceedance of human health screening criteria

Appendix B - Table 3
Water Quality Parameters
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Table 3 - Groundwater Water Quality Parameters

AECOM

		Sampling Results											
Month	**Location ID**	**Date**	**DO (mg/L)**	**EC (µS/cm)**	**pH**	**Redox (mV)**	**Redox (corr) (mV)**	**Temp (°C)**	**Turbditiy**	**Water Colour**	**Odour**	**Sheen**	**Sample Method**
	OTH117	14/11/2023	Missing field parameters - data collection error										Tap
	OTH118	13/11/2023	3.35	824	6.91	88	288	32	Low	Colourless	No odour	No sheen	Tap
	OTH119	13/11/2023	3.22	852	7.07	85.8	285.8	32.7	Low	Colourless	No odour	No sheen	Tap
	POT112	13/11/2023	Missing field parameters - data collection error										Tap
	POT113	13/11/2023	2.81	833	6.87	71.9	271.9	31	Low	Colourless	No odour	No sheen	Tap
	POT114	13/11/2023	1.69	838	7.02	85.5	285.5	32.5	Low	Colourless	No odour	No sheen	Tap
	POT120	13/11/2023	4.01	841	7.47	90.9	290.9	33.1	Low	Colourless	No odour	No sheen	Tap
	POT121	14/11/2023	3.62	739	7.65	76.3	276.3	29.6	Low	Colourless	No odour	No sheen	Tap
	POT124	13/11/2023	2.41	810	6.98	92.2	292.2	31.6	Low	Colourless	No odour	No sheen	Tap
	POT125	13/11/2023	4.01	824	7.24	91.1	291.1	35.4	Low	Colourless	No odour	No sheen	Tap
	POT126	13/11/2023	2.13	773	6.97	71.4	271.4	31.6	Low	Colourless	No odour	No sheen	Tap
	POT127	13/11/2023	2.72	859	7.02	90.2	290.2	35.9	Low	Colourless	No odour	No sheen	Tap
	POT128	13/11/2023	2.01	807	6.9	60.8	260.8	31.4	Low	Colourless	No odour	No sheen	Tap
	POT129	13/11/2023	2.78	796	6.94	83.3	283.3	30.8	Low	Colourless	No odour	No sheen	Tap
	POT130	14/11/2023	3.03	744	7.01	83.2	283.2	28	Low	Colourless	No odour	No sheen	Tap
	POT131	13/11/2023	3.01	786	7.2	72.3	272.3	38.7	Low	Colourless	No odour	No sheen	Tap
	POT198	14/11/2023	4.12	835	7.24	98.2	298.2	32.5	Low	Colourless	No odour	No sheen	Tap
	POT201	14/11/2023	3.03	796	7.15	80.1	280.1	30.4	Low	Colourless	No odour	No sheen	Tap
December 2023	OTH117	13/12/2023	1.98	750	6.9	89.8	289.8	31	Low	Colourless	No odour	No sheen	Tap
	OTH118	12/12/2023	1.29	937	7.2	91.7	291.7	50.3	Low	Colourless	No odour	No sheen	Tap
	OTH119	13/12/2023	3.55	846	6.89	100.4	300.4	33.2	Low	Colourless	No odour	No sheen	Tap
	POT112	13/12/2023	2.24	821	6.79	110.2	310.2	33.8	Low	White	No odour	No sheen	Tap
	POT113	13/12/2023	3.54	848	6.84	104.7	304.7	31	Low	Colourless	No odour	No sheen	Tap
	POT114	12/12/2023	1.51	812	7.02	84.4	284.4	34.2	Low	Colourless	No odour	No sheen	Tap
	POT120	12/12/2023	3.42	729	4.36	87.6	287.6	29.7	Low	Colourless	No odour	No sheen	Tap
	POT121	12/12/2023	4.41	768	7.54	70.6	270.6	33	Low	Colourless	No odour	No sheen	Tap
	POT124	12/12/2023	1.64	774	6.9	88.7	288.7	31.2	Low	Colourless	No odour	No sheen	Tap
	POT125	12/12/2023	2.92	741	7.54	91.8	291.8	42.9	Low	Colourless	No odour	No sheen	Tap
	POT127	12/12/2023	4.87	788	7.01	128.3	328.3	30.2	Low	Colourless	No odour	No sheen	Tap
	POT128	13/12/2023	3.38	748	6.88	99.8	299.8	30.8	Low	Colourless	No odour	No sheen	Tap
	POT129	13/12/2023	3.90	783	7.03	100.3	300.3	33	Low	Colourless	No odour	No sheen	Tap
	POT130	13/12/2023	1.83	849	6.91	113.5	313.5	36.4	Low	Colourless	No odour	No sheen	Tap
	POT131	12/12/2023	2.8	635	7.44	91.6	291.6	30.8	Low	Colourless	No odour	No sheen	Tap
	POT198	12/12/2023	2.28	893	6.79	112.2	312.2	37.8	Low	Colourless	No odour	No sheen	Tap
	POT201	12/12/2023	3.76	999	7.15	109.2	309.2	44.6	Low	Colourless	No odour	No sheen	Tap
January 2024	OTH118	16/01/2024	4.97	697	6.85	-89.9	110.1	30.3	Low	Colourless	No odour	No sheen	Tap
	OTH119	15/01/2024	4.32	719	7.01	11.1	211.1	29.2	Low	Colourless	No odour	No sheen	Tap
	POT112	15/01/2024	0.77	718	6.94	-76.6	123.4	30.2	Low	Colourless	No odour	No sheen	Tap
	POT113	15/01/2024	1.99	1021	6.76	-22.7	177.3	30.8	Low	Colourless	No odour	No sheen	Tap
	POT120	16/01/2024	5.62	710	7.29	-76.5	123.5	29.4	Low	Colourless	No odour	No sheen	Tap
	POT121	15/01/2024	4.93	723	7.49	28.1	228.1	29.6	Low	Colourless	No odour	No sheen	Tap
	POT124	16/01/2024	3.10	730	6.97	-82.3	117.7	29.1	Low	Colourless	No odour	No sheen	Tap
	POT125	15/01/2024	5.01	623	7.53	22.5	222.5	27.4	Low	Colourless	No odour	No sheen	Tap
	POT127	16/01/2024	5.22	605	7.22	-126.5	73.5	26.1	Low	Colourless	No odour	No sheen	Tap
	POT128	15/01/2024	1.25	702	6.86	-118.6	81.4	30.7	Low	Colourless	No odour	No sheen	Tap
	POT129	15/01/2024	4.62	672	7.2	-2.8	197.2	27.7	Low	Colourless	No odour	No sheen	Tap
	POT130	16/01/2024	5.92	694	7.07	-95.4	104.6	29.1	Low	Colourless	No odour	No sheen	Tap
	POT131	15/01/2024	4.40	437	7.57	-52.1	147.9	28.7	Low	Colourless	No odour	No sheen	Tap
	POT198	16/01/2024	6.74	845	7.81	149.5	349.5	26.3	Low	Colourless	No odour	No sheen	Tap
	POT201	15/01/2024	4.87	721	7.15	15.7	215.7	30.3	Low	Colourless	No odour	No sheen	Tap

Notes:
mg/L: milligram per Litre
µS/cm: microsiemens per centimetre
mV: millivolts
°C: degrees celcius
Corrected redox = redox + 200
* MW118 is a replacement well for MW117
** MW732 is a replacement well for MW134
*** OTH116 is a replacement site for MW138
^ TOC elevation not within DERP

Appendix B - Table 4
Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table 4 - Groundwater Analytical Results

AECOM

	Location Code	Sampled Date	Field ID	Lab Report Number	Sample Type	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS	Sum of PFHxS and PFOS	Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluorohexane sulfonic acid (PFHxS)
						PFAS Full Suite																													
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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					0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.02	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.01	0.01	0.01	0.01	0.01
	PFAS NEMP 2020 Drinking Water																															**0.07**		**0.56**	
	PFAS NEMP 2020 Freshwater 99%																																*0.00023**	*19*	
	PFAS NEMP 2020 Recreational Water																															2		10	
November	OTH117	14/11/2023	0990_OTH117_231114	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	13/11/2023	0990_OTH118_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH119	13/11/2023	0990_OTH119_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT112	13/11/2023	0990_POT112_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
	POT113	13/11/2023	0990_POT113_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
	POT113	13/11/2023	0990_QC100_231113	ES2340047	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
	POT113	13/11/2023	0990_QC200_231113	RN1412529	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.02	<0.02	<0.02	<0.01	0.023	0.023	<0.02*	<0.01	0.023
	POT114	13/11/2023	0990_POT114_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT120	13/11/2023	0990_POT120_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05	0.03	<0.01	0.02
	POT121	14/11/2023	0990_POT121_231114	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT124	13/11/2023	0990_POT124_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT125	13/11/2023	0990_POT125_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT126	13/11/2023	0990_POT126_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT127	13/11/2023	0990_POT127_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT127	13/11/2023	0990_QC101_231113	ES2340047	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT127	13/11/2023	0990_QC201_231113	RN1412529	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02*	<0.01	<0.01
	POT128	13/11/2023	0990_POT128_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT129	13/11/2023	0990_POT129_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT130	14/11/2023	0990_POT130_231114	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT131	13/11/2023	0990_POT131_231113	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT198	14/11/2023	0990_POT198_231114	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT198	14/11/2023	0990_QC102_231114	ES2340047	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT198	14/11/2023	0990_QC202_231114	RN1412529	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02*	<0.01	<0.01
	POT201	14/11/2023	0990_POT201_231114	ES2340047	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
December	OTH117	13/12/2023	0990_OTH117_231213	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	12/12/2023	0990_OTH118_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	12/12/2023	0990_QC100_231212	ES2343442	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	12/12/2023	0990_QC200_231212	RN1415095	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02*	<0.01	<0.01
	OTH119	13/12/2023	0990_OTH119_231213	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT112	13/12/2023	0990_POT112_231213	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
	POT113	13/12/2023	0990_POT113_231213	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	**0.14**	0.07	<0.01	0.07
	POT113	13/12/2023	0990_QC102_231213	ES2343442	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	**0.14**	0.07	<0.01	0.07
	POT113	13/12/2023	0990_QC202_231213	RN1415095	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	<0.01	0.011	<0.02	<0.02	<0.02	<0.01	0.136	**0.099**	0.043	<0.01	0.056
	POT114	12/12/2023	0990_POT114_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT120	12/12/2023	0990_POT120_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
	POT121	12/12/2023	0990_POT121_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
	POT124	12/12/2023	0990_POT124_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT124	12/12/2023	0990_QC101_231212	ES2343442	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT124	12/12/2023	0990_QC201_231212	RN1415095	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02*	<0.01	<0.01
	POT125	12/12/2023	0990_POT125_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT127	12/12/2023	0990_POT127_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT128	13/12/2023	0990_POT128_231213	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT129	13/12/2023	0990_POT129_231213	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT130	13/12/2023	0990_POT130_231213	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT131	12/12/2023	0990_POT131_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT198	12/12/2023	0990_POT198_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT201	12/12/2023	0990_POT201_231212	ES2343442	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
January	OTH118	16/01/2024	0990_OTH118_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	16/01/2024	0990_QC101_240116	ES2401443	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	16/01/2024	0990_QC201_240116	RN1417993	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02*	<0.01	<0.01
	OTH119	15/01/2024	0990_OTH119_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT112	15/01/2024	0990_POT112_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	**0.14**	0.1	<0.01	0.04
	POT113	15/01/2024	0990_POT113_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	<0.02	0.05	<0.02	<0.05	<0.02	<0.02	0.61	**0.43**	0.19	0.01	0.24
	POT113	15/01/2024	0990_QC100_240115	ES2401443	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.02	0.05	<0.02	<0.05	<0.02	<0.02	0.55	**0.39**	0.17	0.01	0.22
	POT113	15/01/2024	0990_QC200_240115	RN1417993	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	0.041	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.082	<0.01	<0.01	0.044	<0.02	<0.02	<0.02	<0.01	0.577	**0.41**	0.17	<0.01	0.24
	POT120	16/01/2024	0990_POT120_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05	0.03	<0.01	0.02
	POT120	16/01/2024	0990_QC102_240116	ES2401443	Intra-Lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
	POT120	16/01/2024	0990_QC202_240116	RN1417993	Inter-Lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	0.014	0.014	<0.02*	<0.01	0.014
	POT121	15/01/2024	0990_POT121_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
	POT124	16/01/2024	0990_POT124_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT125	15/01/2024	0990_POT125_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT127	16/01/2024	0990_POT127_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT128	15/01/2024	0990_POT128_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT129	15/01/2024	0990_POT129_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT130	16/01/2024	0990_POT130_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT131	15/01/2024	0990_POT131_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT198	16/01/2024	0990_POT198_240116	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT201	15/01/2024	0990_POT201_240115	ES2401443	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01

Notes:
µg/L: micrograms per litre
LOR: limit of reporting
* LOR is above guideline value
Denotes first time detection above LOR for Sum of PFHxS+PFOS or PFOA
Denotes new exceedance of human health screening criteria

Appendix C

Field Logs

ANZ

FQM - Groundwater Sampling and Purging Record

OMP SW

AECOM

Q4AN(EV)-405-FM1

Project Name:	PFAS OMP	Project Number:	60612561	PM Name:	[redacted]	Sample Date:	13-14-11-23
Client:	DoD	Project Location:	TINDAL	Fieldwork Staff:		Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.: HD	☑ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model: 751	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☑ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Insert Time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole ☑ Retrieved		☒ Other (specify) GRAB	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):					Parameters

Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:	Total purged volume (L):

Water Quality Parameters

Location ID	Time	Type	QA/QC?	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
13/11/23 SW016	~~14:00~~	GRAB	QC100/200	2.81	212.8	7.9	32.1	31.81	Pale brown, mod turb, pooled, NO, NS
SW188	~~7:30~~	↓	—	2.77	209.2	7.79	41.2	31.7	Pale br. high turbidity, pooled from runway, NO NS
14/11 SW021	~~8:00~~		—	2.44	210.2	7.01	52.1	31.2	Pale brown
SW049	—		—	4.51	175.2	7.10	28.7	31.8	Pale brown, pooled from PMD haul road, NO, NS
SW140	—		—	4.41	273.2	7.21	33.1	31.9	Colourless, lab turb, algae, low flow/pooled
SW350	—	↓	—	3.03	186.2	7.31	54.2	31.2	Brown, translucent/low turb, no od/sheen, low flow
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected			QA/QC Information	Field Commets
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO3)	SW016	Bore volume calculation, bore condition, fate of tubing, redox correction etc.
0	2	x 40 mL Vial (H2SO4)	x 100 mL Amber	x 250 mL Plastic		

Approval and Distribution

[redacted]

Name	ProjectId	RiskDescription	DateApproved	PrimarySa	Secondary	QuoteId	Status	TurnAroundDays
Tindal - Pr	NT_0990_PFASOMP_24		Fri 17 Nov 2023 05:07:38 GMT			ES2019AE	Workorder	5

Sample Points

Id	Name	Description	CollectionDate	Lat	Lng	MatrixId	OnHold	MaximumS	MinimumS	pH	Conductivity	Temperature	Dissolved Oxygen	Redox Potential	Free Chlor	Total Chlo	Standing V	Observations
1	0990_POT112_231113		13/11/2023 12:25			WATER	FALSE											
2	0990_POT128_231113		13/11/2023 12:28			WATER	FALSE			6.9	807	31.4	2.01	60.8				Colourless low turbidi no odour no sheen
3	0990_POT113_231113		13/11/2023 12:36			WATER	FALSE			6.87	833	31	2.81	71.9				Colourless low turbidi no odour no sheen
4	0990_POT129_231113		13/11/2023 12:52			WATER	FALSE			6.94	796	30.8	2.78	83.3				Colourless low turbidi no odour no sheen
5	0990_OTH119_231113		13/11/2023 13:08			WATER	FALSE			7.07	852	32.7	3.22	85.8				Colourless low turbidi no odour no sheen
6	0990_POT126_231113		13/11/2023 16:22			WATER	FALSE			6.97	773	31.6	2.13	71.4				Colourless low turbidi no odour no sheen
7	0990_POT131_231113		13/11/2023 18:08			WATER	FALSE			7.2	786	38.7	3.01	72.3				Colourless low turbidi no odour no sheen
8	0990_OTH117_231114		14/11/2023 13:05			WATER	FALSE											
9	0990_POT130_231114		14/11/2023 9:54			WATER	FALSE			7.01	744	28	3.03	83.2				Colourless low turbidi no odour no sheen
10	0990_POT121_231114		14/11/2023 9:55			WATER	FALSE			7.65	739	29.6	3.62	76.3				Colourless low turbidi no odour no sheen
11	0990_POT201_231114		14/11/2023 10:56			WATER	FALSE			7.15	796	30.4	3.03	80.1				Colourless low turbidi no odour no sheen
12	0990_POT198_231114		14/11/2023 11:08			WATER	FALSE			7.24	835	32.5	4.12	98.2				Colourless low turbidi no odour no sheen
13	0990_POT124_231113		13/11/2023 15:35			WATER	FALSE			6.98	810	31.6	2.41	92.2				Colourless low turbidi no odour no sheen
14	0990_POT125_231113		13/11/2023 15:24			WATER	FALSE			7.24	824	35.4	4.01	91.1				Colourless low turbidi no odour no sheen
15	0990_POT120_231113		13/11/2023 14:37			WATER	FALSE			7.47	841	33.1	4.01	90.9				Colourless low turbidi no odour no sheen
16	0990_POT114_231113		13/11/2023 15:46			WATER	FALSE			7.02	838	32.5	1.69	85.5				Colourless low turbidi no odour no sheen
17	0990_OTH118_231113		13/11/2023 14:49			WATER	FALSE			6.91	824	32	3.35	88				Colourless low turbidi no odour no sheen
18	0990_POT127_231113		13/11/2023 14:51			WATER	FALSE			7.02	859	35.9	2.72	90.2				Colourless low turbidi no odour no sheen
19	0990_POT224_231113		13/11/2023 9:38			WATER	FALSE			7.22	933	37	2.45	88.6				Colourless low turbidi no odour no sheen
20	0990_POT225_231114		14/11/2023 13:38			WATER	FALSE			6.72	791	32.4	1.03	71.8				Colourless low turbidi no odour no sheen
21	0990_POT226_231114		14/11/2023 13:39			WATER	FALSE			7.02	887	37.2	2.57	75.6				Colourless low turbidi no odour no sheen
22	0990_POT227_231114		14/11/2023 13:39			WATER	FALSE			7.07	890	36.9	2.47	80.2				Colourless low turbidi no odour no sheen
23	0990_POT228_231115		15/11/2023 18:33			WATER	FALSE			6.92	859	35.5	3.27	44.7				Colourless low turbidi no odour no sheen
24	0990_QC100_231113					WATER	FALSE											
25	0990_QC101_231113		13/11/2023 16:23			WATER	FALSE											
26	0990_QC102_231114					WATER	FALSE											
27	0990_QC200_231113		13/11/2023 16:23			WATER	FALSE											
28	0990_QC201_231113		13/11/2023 16:24			WATER	FALSE											
29	0990_QC202_231114		14/11/2023 11:09			WATER	FALSE											
30	0990_QC300_231113					WATER	FALSE											
31	0990_QC301_231114					WATER	FALSE											
32	0990_QC400_231113					WATER	FALSE											
33	0990_QC401_231114					WATER	FALSE											
34	0990_QC500_231113					WATER	FALSE											
35	0990_POT229_231115		15/11/2023 18:34			WATER	FALSE			7.43	701	34.9	4.07	41.4				Colourless low turbidi no odour no sheen
36	0990_POT230_231115		15/11/2023 18:35			WATER	FALSE			7.43	41.2	34.9	4.07	32.8				Colourless low turbidi no odour no sheen
37	0990_QC302_231115		15/11/2023 18:37			WATER	FALSE											
38	0990_QC302_231115		15/11/2023 18:37			WATER	FALSE											

Name	ProjectId	RiskDescription	DateApproved	PrimarySa	Secondary	QuoteId	Status	TurnAroundDays
Tindal Priv	NT_0990_PFASOMP_23		Thu 14 Dec 2023 01:00:51 GMT			ES2019AE	Workorderl	5

Sample Points

Id	Name	Description	CollectionDate	Lat	Lng	MatrixId	OnHold	MaximumS	MinimumS	pH	Conductivity	Temperature	Dissolved Oxygen	Redox Potential	Free Chlori	Total Chlor	Standing V	Observations			
1	0990_POT231_231212		12/12/2023 14:06			WATER	FALSE			6.88	870	32.3	1.63	130.1				Colourless	low turbid	no odour	no sheen
2	0990_POT232_231212		12/12/2023 14:07			WATER	FALSE			6.79	871	34.3	1.65	120.8				Colourless	low turbid	no odour	no sheen
3	0990_POT201_231212		12/12/2023 15:41			WATER	FALSE			7.15	999	44.6	3.76	109.2				Colourless	low turbid	no odour	no sheen
4	0990_POT198_231212		12/12/2023 15:57			WATER	FALSE			6.79	893	37.8	2.28	112.2				Colourless	low turbid	no odour	no sheen
5	0990_POT125_231212		12/12/2023 16:15			WATER	FALSE			7.54	741	42.9	2.92	91.8				Colourless	low turbid	no odour	no sheen
6	0990_OTH118_231212		12/12/2023 16:32			WATER	FALSE			7.2	937	50.3	1.29	91.7				Colourless	low turbid	no odour	no sheen
7	0990_POT127_231212		12/12/2023 17:13			WATER	FALSE			7.01	788	30.2	4.87	128.3				Colourless	low turbid	no odour	no sheen
8	0990_POT121_231212		12/12/2023 17:55			WATER	FALSE			7.54	768	33	4.41	70.6				Colourless	low turbid	no odour	no sheen
9	0990_OTH117_231213		13/12/2023 9:04			WATER	FALSE			6.9	750	31	1.98	89.8				Colourless	low turbid	no odour	no sheen
10	0990_POT130_231213		13/12/2023 11:46			WATER	FALSE			6.91	849	36.4	1.83	113.5				Colourless	low turbid	no odour	no sheen
11	0990_POT124_231212		12/12/2023 17:40			WATER	FALSE			6.9	774	31.2	1.64	88.7				Colourless	low turbid	no odour	no sheen
12	0990_POT114_231212		12/12/2023 17:33			WATER	FALSE			7.02	812	34.2	1.51	84.4				Colourless	low turbid	no odour	no sheen
13	0990_POT112_231213		13/12/2023 11:45			WATER	FALSE			6.79	821	33.8	2.24	110.2				White	low turbid	no odour	no sheen
14	0990_POT113_231213		13/12/2023 9:38			WATER	FALSE			6.84	848	31	3.54	104.7				Colourles	low turbid	no odour	no sheen
15	0990_POT128_231213		13/12/2023 9:26			WATER	FALSE			6.88	748	30.8	3.38	99.8				Colourless	low turbid	no odour	no sheen
16	0990_POT129_231213		13/12/2023 10:21			WATER	FALSE			7.03	783	33	3.9	100.3				Colourles	low turbid	no odour	no sheen
17	0990_OTH119_231213		13/12/2023 10:35			WATER	FALSE			6.89	846	33.2	3.55	100.4				Colourless	low turbid	no odour	no sheen
18	0990_POT233_231213					WATER	FALSE														
19	0990_POT234_231213		13/12/2023 12:53			WATER	FALSE			7.6	735	32.2	3.62	95.1				Colourless	low turbid	no odour	no sheen
20	0990_POT131_231212		12/12/2023 18:31			WATER	FALSE			7.44	635	30.8	2.8	91.6				Colourless	low turbid	no odour	no sheen
21	0990_POT120_231212		12/12/2023 17:09			WATER	FALSE			4.36	729	29.7	3.42	87.6				Colourless	low turbid	no odour	no sheen
22	0990_QC100_231212		12/12/2023 17:10			WATER	FALSE														
23	0990_QC200_231212		12/12/2023 16:40			WATER	FALSE														
24	0990_QC300_231212		12/12/2023 16:29			WATER	FALSE														
25	0990_QC400_231212		12/12/2023 16:29			WATER	FALSE														
26	0990_QC500_231212		12/12/2023 16:28			WATER	FALSE														
27	0990_QC101_231212		12/12/2023 17:42			WATER	FALSE														
28	0990_QC2	Pls forward to NMI	12/12/2023 17:43			WATER	FALSE														
29	0990_QC102_231213		13/12/2023 10:18			WATER	FALSE														
30	0990_QC2	Forward to NMI for analysis	13/12/2023 10:18			WATER	FALSE														
31	0990_QC301_231213		13/12/2023 14:48			WATER	FALSE														
32	0990_QC401_231213		13/12/2023 14:49			WATER	FALSE														

Name	ProjectId	RiskDescription	DateApproved	PrimarySa	SecondarySa	QuoteId	Status	TurnAroundDays
Private Prc	NT 0990	PFASOMP 24	Tue 16 Jan 2024 08:58:45 GMT			ES2019AE	Approved	5

Sample Points

Id	Name	Description	CollectionDate	Lat	Lng	MatrixId	OnHold	MaximumS	MinimumS	pH	Conductivi	Temperatu	Dissolved	Redox Pot	Free Chlor	Total Chlo	Standing V	Observatic	PID Reading		
1	0990_OTH118_240116		16/01/2024 9:48			WATER	FALSE			6.85	697	30.3	4.97	-89.9				Colourless	low turbid	no odour	no sheen
2	0990_OTH119_240115		15/01/2024 13:45			WATER	FALSE			7.01	719	29.2	4.32	11.1			Colourless	low turbid	no odour	no sheen	
3	0990_POT112_240115		15/01/2024 13:35			WATER	FALSE			6.94	718	30.2	0.77	-76.6				Colourless	low turbid	no odour	no sheen
4	0990_POT113_	QC	15/01/2024 13:25			WATER	FALSE			6.76	1021	30.8	1.99	22.7				Colourless	low turbidity	no odour	no sheen
5	0990_POT120_240116		16/01/2024 10:15			WATER	FALSE			7.29	710	29.4	5.62	-76.5				Colourless	low turbidity	no odour	no sheen
6	0990_POT121_240115		15/01/2024 12:55			WATER	FALSE			7.49	723	29.6	4.93	28.1				Colourless	low turbidity	no odour	no sheen
7	0990_POT124_240116		16/01/2024 9:22			WATER	FALSE			6.97	730	29.1	3.1	-82.3				Colourless	low turbidity	no odour	no sheen
8	0990_POT125_240115		15/01/2024 13:51			WATER	FALSE			7.53	623	27.4	5.01	22.5				Colourless	low turbidity	no odour	no sheen
9	0990_POT127_240116		16/01/2024 10:02			WATER	FALSE			7.22	605	26.1	5.22	-126.5				Colourless	low turbidity	no odour	no sheen
10	0990_POT128_240115		15/01/2024 13:20			WATER	FALSE			6.86	702	30.7	1.25	-118.6				Colourless	low turbidity	no odour	no sheen
11	0990_POT129_240115		15/01/2024 13:02			WATER	FALSE			7.2	672	27.7	4.62	-2.8				Colourless	low turbidity	no odour	no sheen
12	0990_POT130_240116		16/01/2024 10:26			WATER	FALSE			7.07	694	29.1	5.92	-95.4				Colourless	low turbidity	no odour	no sheen
13	0990_POT131_240115		15/01/2024 18:09			WATER	FALSE			7.57	437	28.7	4.4	-52.1				Brown	moderate turbidity	no odour	no sheen
14	0990_POT198_240116		16/01/2024 9:38			WATER	FALSE			6.81	884	26.3	6.74	149.5				Colourless	low turbidity	no odour	no sheen
15	0990_POT201_240115		15/01/2024 13:59			WATER	FALSE			7.15	721	30.3	4.87	15.7				Colourless	low turbidity	no odour	no sheen
16	0990_SW108_240116		16/01/2024 11:36			WATER	FALSE			7.87	42.9	27.9	6.06	124.6				Pale brown	high turbidity	moderate flow	no odour	no sheen	heavy rain
17	0990_SW153_240116		16/01/2024 11:47			WATER	FALSE														
18	0990_QC100_240115		15/01/2024 13:03			WATER	FALSE														
19	0990_QC101_240116		16/01/2024 9:49			WATER	FALSE														
20	0990_QC102_240116		16/01/2024 10:16			WATER	FALSE														
21	0990_QC200_240115	Send to NMI please	15/01/2024 13:05			WATER	FALSE														
22	0990_QC2	Send to NMI please	16/01/2024 9:50			WATER	FALSE														
23	0990_QC2	Please forward to NMI	16/01/2024 10:16			WATER	FALSE														
24	0990_QC300_240115		15/01/2024 13:07			WATER	FALSE														
25	0990_QC301_240116		16/01/2024 10:04			WATER	FALSE														
26	0990_QC400_240115		15/01/2024 13:08			WATER	FALSE														
27	0990_QC401_240116		16/01/2024 10:05			WATER	FALSE														
28	0990_QC500_240115		15/01/2024 13:03			WATER	FALSE														
29	0990_OTH008_240116		16/01/2024 13:17	-14.4608	132.2679	WATER	FALSE			8.05	1513	29.3	5.57	-81.3				Colourless	low turbidity	chlorine odour	no sheen	kids swimming	
30	0990_POT235_240116		16/01/2024 12:32			WATER	FALSE			6.71	770	30.8	5.42	-125.2				Colourless	low turbidity	no odour	no sheen		
31	0990_OTH129_240116																				

DRAFT

Appendix D

Data Validation Report

AECOM

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	01/12/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	18/12/2023
Lab reference:	November 2023: ES2339515, ES2340047, RN1411892, RN1412529		

Key Findings:

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) in all primary samples during the November 2023 sampling except for primary locations POT113 and POT120. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.
- The November monitoring event was completed in conjunction with an ad-hoc groundwater sampling event which has been reported separately. The data validation has been assessed as an all-inclusive event and therefore laboratory batch ES2340047 may reference some of these ad-hoc location IDs.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times			✓	1	No
Frequency of laboratory QA/QC			✓	2	No
Limits of reporting (LOR)			✓	3	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries		✓			No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other comments		✓			No

Comments

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	01/12/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	18/12/2023
Lab reference:	November 2023: ES2339515, ES2340047, RN1411892, RN1412529		

1. Sample handling/ preservation/ holding times

Laboratory batches were received slightly outside of the recommended temperature range (≤6°C):

Batch Number	Temperature (°C)
ES2339515	14.0 °C
ES2340047	12.3 °C - 13.8 °C
RN1411892	Chilled
RN1412529	Chilled

Potential under reporting exists for the primary sample batches. However, as the temperatures were recorded well below the ambient sample temperature at the time of sampling (~30°C), samples were immediately cooled upon collection, and due to the nature of PFAS, the likelihood of under reporting is unlikely and not considered to materially affect the interpretation of results.

2. Frequency of laboratory QA/QC

Laboratory duplicate samples were not reported for PFAS in primary batch ES2340047. The precision of the data can be assessed as acceptable based on intra- and inter-laboratory duplicate RPDs which were reported at the required frequencies and within control limits.

Matrix spikes were not reported for PFAS method group in primary batch ES2340047. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits).

3. Limits of reporting

Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water.

The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for all sample results, with the exception of primary samples results for POT113 and POT120 which reported above the LOR and therefore above guideline. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

Data Validation Report
QA/QC Blanks
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

QA/QC Blanks

Lab Report	ES2339515	ES2340047	ES2340047	ES2340047	ES2339515	ES2340047	ES2340047	ES2340047	ES2339515	ES2340047
Field ID	0990_QC300_231113	0990_QC300_231113	0990_QC301_231114	0990_QC302_231115	0990_QC400_231113	0990_QC400_231113	0990_QC401_231114	0990_QC402_231115	0990_QC500_231113	0990_QC500_231113
Date	13/11/2023	14/11/2023	14/11/2023	15/11/2023	13/11/2023	14/11/2023	14/11/2023	15/11/2023	13/11/2023	14/11/2023
Sample Type	Rinsate	Rinsate	Rinsate	Rinsate	Field Blank	Field Blank	Field Blank	Field Blank	Trip Blank	Trip Blank

Analyte	**Units**	**LOR**										
PFAS Full Suite												
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	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	0.05	<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	0.05	<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	0.05	<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	0.05	<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	0.02	<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
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	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	0.02	<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
Perfluorobutane sulfonic acid (PFBS)	µg/L	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	0.1	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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	0.02	<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
Perfluorotetradecanoic acid (PFTeDA)	µg/L	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
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	<0.02	<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	<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	<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	<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
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

Data Validation Report
RPDs
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Relative Percentage Differences

AECOM

Lab Report Number	ES2339515	ES2339515		ES2340047	ES2340047		ES2340047	ES2340047		ES2340047	ES2340047	
Field ID	0990_SW016_231113	0990_QC100_231113	RPD	0990_POT113_231113	0990_QC100_231113	RPD	0990_POT127_231113	0990_QC101_231113	RPD	0990_POT198_231114	0990_QC102_231114	RPD
Sample Type	Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate	
Date	13/11/2023	13/11/2023		13/11/2023	13/11/2023		13/11/2023	13/11/2023		14/11/2023	14/11/2023	

Analyte	Units	LOR											
PFAS Full Suite													
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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	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	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	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	<0.02	0	<0.02	<0.02	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<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	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	0.02	0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<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	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<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	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.24	0.24	0	0.02	0.02	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<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	0.05	0.05	0	<0.01	0.02	67	<0.01	<0.01	0	<0.01	<0.01	0

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Data Validation Report
RPDs
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Relative Percentage Differences

AECOM

Lab Report Number	ES2339515	RN1411892		ES2340047	RN1412529		ES2340047	RN1412529		ES2340047	RN1412529	
Field ID	0990_SW016_231113	0990_QC200_231113	RPD	0990_POT113_231113	0990_QC200_231113	RPD	0990_POT127_231113	0990_QC201_231113	RPD	0990_POT198_231114	0990_QC202_231114	RPD
Sample Type	Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate	
Date	13/11/2023	13/11/2023		13/11/2023	13/11/2023		13/11/2023	13/11/2023		14/11/2023	14/11/2023	
Analyte	**Units**	**LOR**										
PFAS Full Suite												
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.05	0	<0.1	<0.05	0	<0.1	<0.05	0	<0.1	<0.05	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.02	0.017	16	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.05	0	<0.02	<0.05	0	<0.02	<0.05	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.24	0.23	4	0.02	<0.02	0	<0.01	<0.02	0	<0.01	<0.02	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<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	0.05	0.052	4	<0.01	0.023	79	<0.01	<0.01	0	<0.01	<0.01	0

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	09/01/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	10/01/2023
Lab reference:	December 2023: ES2343442, RN1415095		

Key Findings:

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for concentrations of PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) in all primary samples, with the exception of primary locations POT112, POT113, POT120, POT121 and POT232 (ad-hoc location), and should be taken into consideration when interpreting results.

To note, the December 2023 monitoring event was completed in conjunction with an ad-hoc groundwater sampling event which has been reported separately. The data validation has been assessed as an all-inclusive event and therefore laboratory batch ES2343442 may reference some of these ad-hoc location IDs.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times			✓	1	No
Frequency of laboratory QA/QC			✓	2	No
Limits of reporting (LOR)			✓	3	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries		✓			No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other comments		✓			No
Comments					

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	09/01/2023
Site:	0990 – RAAF Tindal		
Matrix:	Water	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney; NMI Sydney	**Date:**	10/01/2023
Lab reference:	December 2023: ES2343442, RN1415095		

1. Sample handling/ preservation/ holding times

Laboratory batches were received slightly outside of the recommended temperature range (≤6°C):

Batch Number	Temperature (°C)
ES2343442	6.4 – 11.0 °C
RN1415095	Chilled

Potential under reporting exists for the primary sample batches. However, as the temperatures were recorded well below the ambient sample temperature at the time of sampling (~30°C), samples were immediately cooled upon collection, and due to the nature of PFAS, the likelihood of under reporting is unlikely and not considered to materially affect the interpretation of results.

2. Frequency of laboratory QA/QC

Laboratory duplicate samples were not reported at the required frequency for PFAS in primary batch ES2343442. The precision of the data can be assessed as acceptable based on intra- and inter-laboratory duplicate RPDs (which were reported at the required frequencies and within control limits), and available laboratory duplicate RPDs for the same analytical method group (which were reported within control limits).

Matrix spikes were not reported at the required frequency for PFAS method group in primary batch ES2343442. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits) and available matrix spike recoveries for the same analytical method group (which were reported within control limits).

3. Limits of reporting

Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water.

The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for all sample results, with the exception of primary samples results for POT112, POT113, POT120, POT121 and POT232 (ad-hoc location) which reported above the LOR and therefore above guideline. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

QA/QC Blanks

Lab Report		ES2343442	ES2343442	ES2343442	ES2343442	ES2343442
Field ID		0990_QC300_231212	0990_QC301_231213	0990_QC400_231212	0990_QC401_231213	0990_QC500_231212
Date		12/12/2023	13/12/2023	12/12/2023	13/12/2023	12/12/2023
Sample Type		Rinsate	Rinsate	Field Blank	Field Blank	Trip Blank
Analyte	**Units**	**LOR**					
PFAS Full Suite							
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	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
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	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
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	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
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	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
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	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
Perfluorobutane sulfonic acid (PFBS)	µg/L	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
Perfluorodecanesulfonic acid (PFDS)	µg/L	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
Perfluorododecanoic acid (PFDoDA)	µg/L	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
Perfluoroheptanoic acid (PFHpA)	µg/L	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
Perfluorononanoic acid (PFNA)	µg/L	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
Perfluoropentane sulfonic acid (PFPeS)	µg/L	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
Perfluorotetradecanoic acid (PFTeDA)	µg/L	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
Perfluoroundecanoic acid (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
Perfluorooctane sulfonic acid (PFOS)	µg/L	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
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Data Validation Report
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Relative Percentage Differences

AECOM

Lab Report Number	ES2343442	ES2343442		ES2343442	ES2343442		ES2343442	ES2343442		ES2343442	RN1415095	
Field ID	0990_OTH118_231212	0990_QC100_231212	**RPD**	0990_POT124_231212	0990_QC101_231212	**RPD**	0990_POT113_231213	0990_QC102_231213	**RPD**	0990_OTH118_231212	0990_QC200_231212	**RPD**
Sample Type	Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Inter-lab Duplicate	
Date	12/12/2023	12/12/2023		12/12/2023	12/12/2023		13/12/2023	13/12/2023		12/12/2023	12/12/2023	
Analyte	**Units**	**LOR**											
PFAS Full Suite													
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	<0.05	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	<0.05	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	<0.05	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	<0.05	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<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	<0.05	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<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	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<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	<0.02	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	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	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	<0.02	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	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.03	0.03	0	<0.02	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<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	<0.02	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	<0.02	0	<0.02	<0.01	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<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	<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	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	<0.01	<0.01	0	0.07	0.07	0	<0.01	<0.02	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<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	<0.01	<0.01	0	<0.01	<0.01	0	0.07	0.07	0	<0.01	<0.01	0

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

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Relative Percentage Differences

Lab Report Number	ES2343442	RN1415095		ES2343442	RN1415095	
Field ID	0990_POT124_231212	0990_QC201_231212	**RPD**	0990_POT113_231213	0990_QC202_231213	**RPD**
Sample Type	Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate	
Date	12/12/2023	12/12/2023		13/12/2023	13/12/2023	

Analyte	**Units**	**LOR**						
PFAS Full Suite								
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.05	<0.01	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	0.01	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.05	0	<0.1	<0.05	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	0.03	0.016	61
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	0.011	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.02	0	<0.05	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.02	0	0.07	0.043	48
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	0	0.07	0.056	22

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

AECOM

DATA VALIDATION REPORT; WATER & SOIL

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	31/01/2024
Site:	0990-RAAF Base Tindal		
Matrix:	Water & Soil	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney & NMI	**Date:**	06/02/2024
Lab reference:	ES2401443, RN1417993		

Key Findings:

The groundwater analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for all primary results with the exception OTH008, POT112, POT113, POT120, POT121 and POT235 that reported samples above the LOR and therefore above the criteria. This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.
- Elevated RPD for PFOS in soil samples from ES2401443 should be taken into consideration when using the data quantitatively. As a conservative approach, the higher concentration should be used when interpreting results quantitatively.

To note, the January 2024 monitoring event was completed in conjunction with an ad-hoc groundwater and soil sampling event which has been reported separately. The data validation has been assessed as an all-inclusive event and therefore laboratory batches may reference some of these ad-hoc location IDs.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control (QAQC)		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times		✓			No
Frequency of laboratory QA/QC					No
Limits of reporting (LOR)			✓	1	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)			✓	2	No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries			✓	3	No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other observations		✓		NA	

Comments

DATA VALIDATION REPORT; WATER & SOIL

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	31/01/2024
Site:	0990-RAAF Base Tindal		
Matrix:	Water & Soil	**Data Verified by:**	[redacted]
Laboratory:	ALS Sydney & NMI	**Date:**	06/02/2024
Lab reference:	ES2401443, RN1417993		

1.	Limits of reporting (LOR)	Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water. The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for all primary results with the exception the following: • OTH008 • POT112 • POT113 • POT120 • POT121 • POT235 Samples from these locations reported above the LOR and therefore above the criteria. This potential for results to be above the selected criteria but below the LOR should be taken into consideration when interpreting PFOS concentrations for all other primary samples.
2.	Field intra-laboratory relative percent differences (RPDs)	Field intra-laboratory duplicate RPDs in primary lab batch ES2401443 for soil were reported within control limits, with the exception of the following, higher concentrations are in bold (as shown in the RPD table): • 0990_OTH129_240116 & **0990_QC103_240116** for Perfluorooctane sulfonic acid (PFOS) (56%) Elevated RPDs are common in soil samples due to their heterogeneous nature. However, as there are no adopted criteria for the ad-hoc sampling event, the elevated RPD for PFOS in soil results is not expected to affect interpretation of results. However, the elevated RPDs should be taken into consideration when using the data quantitatively. As a conservative approach, the higher concentration should be used when interpreting results quantitatively.. Primary and secondary laboratories have confirmed results.
3.	Matrix spike (MS) % recoveries	Matrix spike recoveries were not determined for PFHxS and PFOS as background levels were greater than or equal to 4x spike levels in primary batch ES2401443. These non-determinations do not reflect method bias and do not affect data interpretation. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits), and available matrix spike recoveries for the same analytical method group (which were reported within control limits).

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Relative Percentage Differences

Lab Report Number	**ES2401443**	**ES2401443**		**ES2401443**	**ES2401443**		**ES2401443**	**ES2401443**		**ES2401443**
Field ID	0990_POT113_240115	0990_QC100_240115	**RPD**	0990_OTH118_240116	0990_QC101_240116	**RPD**	0990_POT120_240116	0990_QC102_240116	**RPD**	0990_POT113_240115
Date	15/01/2024	15/01/2024		16/01/2024	16/01/2024		16/01/2024	16/01/2024		15/01/2024
Sample Type	Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary

Analyte	**Units**	**LOR**										
PFAS Full Suite												
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	<0.05	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	<0.05	0	<0.05	<0.05	0	<0.05
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	<0.05	0	<0.05
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	<0.05	0	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05
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	<0.02	0	<0.02
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05
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	<0.02	0	<0.02
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.04	0.03	29	<0.02	<0.02	0	<0.02	<0.02	0	0.04
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.08	0.07	13	<0.02	<0.02	0	<0.02	<0.02	0	0.08
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.05	0.05	0	<0.02	<0.02	0	<0.02	<0.02	0	0.05
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<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)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.19	0.17	11	<0.01	<0.01	0	0.03	0.02	40	0.19
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.01	0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	0.01
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.24	0.22	9	<0.01	<0.01	0	0.02	0.02	0	0.24

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

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Relative Percentage Differences

Lab Report Number		**RN1417993**		**ES2401443**	**RN1417993**		**ES2401443**	**RN1417993**	
Field ID		0990_QC200_240115	**RPD**	0990_OTH118_240116	0990_QC201_240116	**RPD**	0990_POT120_240116	0990_QC202_240116	**RPD**
Date		15/01/2024		16/01/2024	16/01/2024		16/01/2024	16/01/2024	
Sample Type		Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate	
Analyte	**Units**	**LOR**							
PFAS Full Suite									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05 : 0.01 (Interlab)	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05 : 0.01 (Interlab)	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.02	0	<0.05	<0.02	0	<0.05	<0.02	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	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	<0.02	0	<0.05	<0.02	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	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)	0.041	1	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.05	0	<0.1	<0.05	0	<0.1	<0.05	0
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	0.082	2	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02 : 0.01 (Interlab)	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	0.044	5	<0.02	<0.01	0	<0.02	<0.01	0
Perfluoropentanoic acid (PFPeA)	µg/L	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	<0.02	0	<0.05	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	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	<0.01	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.17	2	<0.01	<0.02	0	0.03	0.021	10
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.24	0	<0.01	<0.01	0	0.02	0.022	2

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Data Validation Report
QA/QC Blanks
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

QA/QC Blanks

Lab Report Number		ES2401443	ES2401443	ES2401443	ES2401443	ES2401443
Field ID		0990_QC300_240115	0990_QC301_240116	0990_QC400_240115	0990_QC401_240116	0990_QC500_240115
Sampled Date		15/01/2024	16/01/2024	15/01/2024	16/01/2024	15/01/2024
Sample Type		Rinsate	Rinsate	Field Blank	Field Blank	Trip Blank
Analyte	**Units**	**LOR**					
PFAS Full Suite							
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	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
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	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
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	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
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	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
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	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
Perfluorobutane sulfonic acid (PFBS)	µg/L	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
Perfluorodecanesulfonic acid (PFDS)	µg/L	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
Perfluorododecanoic acid (PFDoDA)	µg/L	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
Perfluoroheptanoic acid (PFHpA)	µg/L	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
Perfluorononanoic acid (PFNA)	µg/L	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
Perfluoropentane sulfonic acid (PFPeS)	µg/L	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
Perfluorotetradecanoic acid (PFTeDA)	µg/L	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
Perfluoroundecanoic acid (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
Perfluorooctane sulfonic acid (PFOS)	µg/L	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
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Data Validation Report
Field RPDs
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Relative Percentage Differences

Lab Report Number	ES2401443	ES2401443		ES2401443	RN1417399		
Field ID	0990_OTH129_240116	0990_QC103_240116	**RPD**	0990_OTH129_240116	0990_QC203_240116	**RPD**	
Date	16/01/2024	16/01/2024		16/01/2024	16/01/2024		
Sample Type	Primary	Intra-lab Duplicate		Primary	Inter-lab Duplicate		

Analyte	Units	LOR						
PFAS Full Suite								
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.01	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005 : 0.001 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005 : 0.001 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005 : 0.001 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.01	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005 : 0.005 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.01	0
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.01	0
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002 : 0.001 (Interlab)	0.0004	0.0005	22	0.0004	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005 : 0.002 (Interlab)	<0.0005	<0.0005	0	<0.0005	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002 : 0.002 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002 : 0.002 (Interlab)	**0.0018**	**0.0032**	**56**	0.0018	0.016	160
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0002 : 0.001 (Interlab)	<0.0002	0.0002	0	<0.0002	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002 : 0.001 (Interlab)	0.0002	0.0003	40	0.0002	<0.005	0

**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Appendix E

Chain of Custody

ALS

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE:			Custody Seal Intact? Yes No N/A
PROJECT: ~~NT-0990 PFAS MONT 23~~ NT-0990_PFAS Mon P_23	ALS QUOTE NO.: SY/139/19 V3	COC SEQUENCE NUMBER (Circle) COC: (1) 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: ~~[illegible]~~ 60612561/3.1		OF: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: [redacted]	CONTACT PH:		Other comment:
SAMPLER: [redacted]	SAMPLER MOBILE: [redacted]		
COC emailed to ALS? (YES / (NO))	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): [redacted]			
Email Invoice to (will default to PM if no other addresses are listed): ap_customerservice.anz@aecom.com			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
AECOM [redacted]	Nighthawk Katherine		[redacted]
DATE/TIME: 14.11.23	DATE/TIME: 14.11.23	DATE/TIME:	DATE/TIME: 16/11/23 0830

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

All QCZXX's to be forward to NMI Sydney Please — 15/11/23 10:20am

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).	Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	0990_SW016_231113	13.11.23	W	PFAS	3	X	Extra vol for lab QC
2	0990_SW049_231113	↓	↓	↓	2	X	
3	0990_SW140_231113				2	X	
4	0990_SW188_231113				2	X	
5	0990_SW350_231113				2	X	
6	0990_SW021_231113				2	X	
7	0990_QC100_231113				2	X	
—	0990_QC200_231113				2	X	→ ALS FWD TO NMI
8	0990_QC300_231113				2	X	
9	0990_QC400_231113				2	X	
10	0990_QC500_231113				2	X	
					TOTAL		

Environmental Division
Sydney
Work Order Reference
ES2339515

Telephone: +61-2-8784 8555

LAB OF ORIGIN: DARWIN

Subcon / Forward Lab / Split WO
Lab / Analysis: NMI
Organised By / Date:
Relinquished By / Date: QC PWO
Connote / Courier: ES2339515
WO No:
Attach By PO / Internal Sheet:

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

CHAIN OF CUSTODY

COC#: 59911 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU003 0

EMAIL REPORTS 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:			

Environmental Division Sydney
Work Order Reference
ES2340047

Telephone : +61-2-8784 8555

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_POT112_231113		13/11/2023 12:25 PM	WATER	ALS: 0 Non ALS: 0	No	X		
002	0990_POT128_231113		13/11/2023 12:28 PM	WATER	ALS: 0 Non ALS: 0	No	X		
003	0990_POT113_231113		13/11/2023 12:36 PM	WATER	ALS: 0 Non ALS: 0	No	X		
004	0990_POT129_231113		13/11/2023 12:52 PM	WATER	ALS: 0 Non ALS: 0	No	X		
005	0990_OTH119_231113		13/11/2023 01:08 PM	WATER	ALS: 0 Non ALS: 0	No	X		
006	0990_POT126_231113		13/11/2023 04:22 PM	WATER	ALS: 0 Non ALS: 0	No	X		
007	0990_POT131_231113		13/11/2023 06:08 PM	WATER	ALS: 0 Non ALS: 0	No	X		

Subcon / Forward Lab / Split WO
Lab / Analysis: NMI
Organised By / Date:
Relinquished By / Date:
Connote / Courier: QC FWP
WO No: ES2340047
Attach By PO / Internal Sheet:

CHAIN OF CUSTODY

COC#: 59911 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_OTH117_231114		14/11/2023 01:06 PM	WATER	ALS: 0 Non ALS: 0	No	X		
009	0990_POT130_231114		14/11/2023 09:54 AM	WATER	ALS: 0 Non ALS: 0	No	X		
010	0990_POT121_231114		14/11/2023 09:55 AM	WATER	ALS: 0 Non ALS: 0	No	X		
011	0990_POT201_231114		14/11/2023 10:56 AM	WATER	ALS: 0 Non ALS: 0	No	X		
012	0990_POT198_231114		14/11/2023 11:08 AM	WATER	ALS: 0 Non ALS: 0	No	X		
013	0990_POT124_231113		13/11/2023 03:35 PM	WATER	ALS: 0 Non ALS: 0	No	X		
014	0990_POT125_231113		13/11/2023 03:24 PM	WATER	ALS: 0 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 59911 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

CONTACT PH:
QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:
/ ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_POT120_231113		13/11/2023 02:37 PM	WATER	ALS: 0 Non ALS: 0	No	X		
016	0990_POT114_231113		13/11/2023 03:46 PM	WATER	ALS: 0 Non ALS: 0	No	X		
017	0990_OTH118_231113		13/11/2023 02:49 PM	WATER	ALS: 0 Non ALS: 0	No	X		
018	0990_POT127_231113		13/11/2023 02:51 PM	WATER	ALS: 0 Non ALS: 0	No	X		
019	0990_POT224_231113		13/11/2023 09:36 AM	WATER	ALS: 0 Non ALS: 0	No	X		
020	0990_POT225_231114		14/11/2023 01:38 PM	WATER	ALS: 0 Non ALS: 0	No	X		
021	0990_POT226_231114		14/11/2023 01:39 PM	WATER	ALS: 0 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 59911 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 22/11/23 0830

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
022	0990_POT227_231114		14/11/2023 01:39 PM	WATER	ALS: 0 Non ALS: 0	No	X		
023	0990_POT228_231115		15/11/2023 06:33 PM	WATER	ALS: 0 Non ALS: 0	No	X		
024	0990_QC100_231113			WATER	ALS: 0 Non ALS: 0	No	X		
025	0990_QC101_231113		13/11/2023 04:23 PM	WATER	ALS: 0 Non ALS: 0	No	X		
026	0990_QC102_231114			WATER	ALS: 0 Non ALS: 0	No	X		
~~027~~	0990_QC200_231113		13/11/2023 04:23 PM	WATER	ALS: 0 Non ALS: 0	No	X	Forward to NMI for analysis	
~~028~~	0990_QC201_231113		13/11/2023 04:24 PM	WATER	ALS: 0 Non ALS: 0	No	X	Forward to NMI for analysis	

CHAIN OF CUSTODY

COC#: 59911 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
[redacted]	0990_QC202_231114		14/11/2023 11:09 AM	WATER	ALS: 0 Non ALS: 0	No	X	Forward to NMI for analysis	
030	0990_QC300_231113			WATER	ALS: 0 Non ALS: 0	No	X		
031	0990_QC301_231114			WATER	ALS: 0 Non ALS: 0	No	X		
032	0990_QC400_231113			WATER	ALS: 0 Non ALS: 0	No	X		
033	0990_QC401_231114			WATER	ALS: 0 Non ALS: 0	No	X		
034	0990_QC500_231113			WATER	ALS: 0 Non ALS: 0	No	X		
035	0990_PO1229_231115		15/11/2023 06:34 PM	WATER	ALS: 0 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 59911 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: 60612561/3.1

TURNAROUND REQUIREMENTS : 5 Days

Biohazard Info:

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
036	0990_POT230_231115		15/11/2023 09:35 PM	WATER	ALS: 0 Non ALS: 0	No	X		
037	0990_QC302_231115		15/11/2023 09:37 PM	WATER	ALS: 0 Non ALS: 0	No	X		
038	0990_QC302_231115		15/11/2023 09:37 PM	WATER	ALS: 0 Non ALS: 0	No	X		

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

CHAIN OF CUSTODY

COC#: 61426 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 14/12/23 0836

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

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:			

Environmental Division Sydney

Work Order Reference

ES2343442

Telephone : +61-2-8784 8555

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_POT231_231212		12/12/2023 02:08 PM	WATER	ALS: 2 Non ALS: 0	No		X		
002	0990_POT232_231212		12/12/2023 02:07 PM	WATER	ALS: 2 Non ALS: 0	No		X		
003	0990_POT201_231212		12/12/2023 03:41 PM	WATER	ALS: 2 Non ALS: 0	No		X		
004	0990_POT198_231212		12/12/2023 03:57 PM	WATER	ALS: 2 Non ALS: 0	No		X		
005	0990_POT125_231212		12/12/2023 04:15 PM	WATER	ALS: 2 Non ALS: 0	No		X		
006	0990_OTH116_231212		12/12/2023 04:32 PM	WATER	ALS: 2 Non ALS: 1	No		X		Extra container for lab QC
007	0990_POT127_231212		12/12/2023 05:13 PM	WATER	ALS: 2 Non ALS: 0	No		X		

Subcon / Forward Lab / Split WO

Lab / Analysis: NMI

Organised By / Date:

Relinquished By / Date:

Connote / Courier: QC FWD

WO No: ES2343442

Attach By PO / Internal Sheet:

CHAIN OF CUSTODY

ALS COC#: 61426 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 19/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

CONTACT PH:
QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:
/ ES2019AECOMAU003 0

EMAIL REPORTS 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 Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_POT121_231212		12/12/2023 05:55 PM	WATER	ALS: 2 Non ALS: 0	No		X		
009	0990_OTH117_231213		13/12/2023 09:04 AM	WATER	ALS: 2 Non ALS: 0	No		X		
010	0990_POT130_231213		13/12/2023 11:46 AM	WATER	ALS: 2 Non ALS: 0	No		X		
011	0990_POT124_231212		12/12/2023 05:40 PM	WATER	ALS: 2 Non ALS: 0	No		X		
012	0990_POT114_231212		12/12/2023 05:33 PM	WATER	ALS: 2 Non ALS: 0	No		X		
013	0990_POT112_231213		13/12/2023 11:45 AM	WATER	ALS: 2 Non ALS: 0	No		X		
014	0990_POT113_231213		13/12/2023 09:38 AM	WATER	ALS: 2 Non ALS: 0	No		X		

CHAIN OF CUSTODY

COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 19/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS 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 Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_POT128_231213		13/12/2023 09:26 AM	WATER	ALS: 2 Non ALS: 0	No		X		
016	0990_POT129_231213		13/12/2023 10:21 AM	WATER	ALS: 2 Non ALS: 0	No		X		
017	0990_OTH119_231213		13/12/2023 10:35 AM	WATER	ALS: 2 Non ALS: 0	No		X		
018	0990_POT233_231213			WATER	ALS: 0 Non ALS: 0	No	-			
019	0990_POT234_231213		13/12/2023 12:53 PM	WATER	ALS: 2 Non ALS: 0	No		X		
020	0990_POT131_231212		12/12/2023 06:31 PM	WATER	ALS: 2 Non ALS: 0	No		X		
021	0990_POT120_231212		12/12/2023 05:09 PM	WATER	ALS: 2 Non ALS: 0	No		X		

CHAIN OF CUSTODY

(ALS) COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	19/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS 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 Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
022	0990_QC100_231212		12/12/2023 05:10 PM	WATER	ALS: 2 Non ALS: 0	No		X		
023	0990_QC200_231212		12/12/2023 04:40 PM	WATER	ALS: 2 Non ALS: 0	No		X		
024	0990_QC300_231212		12/12/2023 04:29 PM	WATER	ALS: 2 Non ALS: 0	No		X		
025	0990_QC400_231212		12/12/2023 04:29 PM	WATER	ALS: 2 Non ALS: 0	No		X		
026	0990_QC500_231212		12/12/2023 04:28 PM	WATER	ALS: 2 Non ALS: 0	No		X		
027	0990_QC101_231212		12/12/2023 05:42 PM	WATER	ALS: 2 Non ALS: 0	No		X		
[redacted]	0990_QC201_231212	Pls forward to NMI	12/12/2023 05:43 PM	WATER	ALS: 2 Non ALS: 0	No		X		

CHAIN OF CUSTODY

COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 14/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

CONTACT PH:
QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:
/ ES2019AECOMAU003 0

EMAIL REPORTS 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 Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
029	0990_QC102_231213		13/12/2023 10:18 AM	WATER	ALS: 2 Non ALS: 0	No		X		
030	0990_QC202_231213	Forward to NMI for analysis	13/12/2023 10:18 AM	WATER	ALS: 2 Non ALS: 0	No		X		
031	0990_QC301_231213		13/12/2023 02:48 PM	WATER	ALS: 2 Non ALS: 0	No		X		
032	0990_QC401_231213		13/12/2023 02:49 PM	WATER	ALS: 2 Non ALS: 0	No		X		

CHAIN OF CUSTODY

ALS COC#: 61426 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 19/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

EMAIL REPORTS 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	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0990_POT231_231212	HDPE (no PTFE)	20 mL	00352309065573	Grey	No	
001	0990_POT231_231212	HDPE (no PTFE)	20 mL	00352309065731	Grey	No	
002	0990_POT232_231212	HDPE (no PTFE)	20 mL	00352309065634	Grey	No	
002	0990_POT232_231212	HDPE (no PTFE)	20 mL	00352309065718	Grey	No	
003	0990_POT201_231212	HDPE (no PTFE)	20 mL	00352309065474	Grey	No	
003	0990_POT201_231212	HDPE (no PTFE)	20 mL	00352309065573	Grey	No	
004	0990_POT198_231212	HDPE (no PTFE)	20 mL	00352309065689	Grey	No	
004	0990_POT198_231212	HDPE (no PTFE)	20 mL	00352309065592	Grey	No	
005	0990_POT125_231212	HDPE (no PTFE)	20 mL	00351221009376	Grey	No	
005	0990_POT125_231212	HDPE (no PTFE)	20 mL	00351221009355	Grey	No	
006	0990_OTH118_231212	HDPE (no PTFE)	20 mL	00352309065691	Grey	No	
006	0990_OTH118_231212	HDPE (no PTFE)	20 mL	00352309065695	Grey	No	
007	0990_POT127_231212	HDPE (no PTFE)	20 mL	00352309065554	Grey	No	
007	0990_POT127_231212	HDPE (no PTFE)	20 mL	00352309065686	Grey	No	
008	0990_POT121_231212	HDPE (no PTFE)	20 mL	00352309065537	Grey	No	
008	0990_POT121_231212	HDPE (no PTFE)	20 mL	00352309065560	Grey	No	
009	0990_OTH117_231213	HDPE (no PTFE)	20 mL	00352309065591	Grey	No	
009	0990_OTH117_231213	HDPE (no PTFE)	20 mL	00352309065716	Grey	No	
010	0990_POT130_231213	HDPE (no PTFE)	20 mL	00351221011383	Grey	No	
010	0990_POT130_231213	HDPE (no PTFE)	20 mL	00351221011353	Grey	No	
011	0990_POT124_231212	HDPE (no PTFE)	20 mL	00352309065651	Grey	No	
011	0990_POT124_231212	HDPE (no PTFE)	20 mL	00352309065704	Grey	No	
012	0990_POT114_231212	HDPE (no PTFE)	20 mL	00352309065484	Grey	No	
012	0990_POT114_231212	HDPE (no PTFE)	20 mL	00352309065560	Grey	No	
013	0990_POT112_231213	HDPE (no PTFE)	20 mL	00352309065659	Grey	No	
013	0990_POT112_231213	HDPE (no PTFE)	20 mL	00352309065601	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 61426 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 19/12/23 0830

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:

014	0990_POT113_231213	HDPE (no PTFE)	20 mL	00352309065608	Grey	No	
014	0990_POT113_231213	HDPE (no PTFE)	20 mL	00352309065598	Grey	No	
015	0990_POT128_231213	HDPE (no PTFE)	20 mL	00352309065717	Grey	No	
015	0990_POT128_231213	HDPE (no PTFE)	20 mL	00352309065655	Grey	No	
016	0990_POT129_231213	HDPE (no PTFE)	20 mL	00352309065469	Grey	No	
016	0990_POT129_231213	HDPE (no PTFE)	20 mL	00352309065548	Grey	No	
017	0990_OTH119_231213	HDPE (no PTFE)	20 mL	00352309065673	Grey	No	
017	0990_OTH119_231213	HDPE (no PTFE)	20 mL	00352309065553	Grey	No	
019	0990_POT234_231213	HDPE (no PTFE)	20 mL	00351221011614	Grey	No	
019	0990_POT234_231213	HDPE (no PTFE)	20 mL	00351221011344	Grey	No	
020	0990_POT131_231212	HDPE (no PTFE)	20 mL	00352309065525	Grey	No	
020	0990_POT131_231212	HDPE (no PTFE)	20 mL	00352309065494	Grey	No	
021	0990_POT120_231212	HDPE (no PTFE)	20 mL	00352309065448	Grey	No	
021	0990_POT120_231212	HDPE (no PTFE)	20 mL	00352309065544	Grey	No	
022	0990_QC100_231212	HDPE (no PTFE)	20 mL	00352309065530	Grey	No	
022	0990_QC100_231212	HDPE (no PTFE)	20 mL	00352309065489	Grey	No	
023	0990_QC200_231212	HDPE (no PTFE)	20 mL	00352309065433	Grey	No	
023	0990_QC200_231212	HDPE (no PTFE)	20 mL	00352309065498	Grey	No	
024	0990_QC300_231212	HDPE (no PTFE)	20 mL	00352309065538	Grey	No	
024	0990_QC300_231212	HDPE (no PTFE)	20 mL	00352309065694	Grey	No	
025	0990_QC400_231212	HDPE (no PTFE)	20 mL	00352309065690	Grey	No	
025	0990_QC400_231212	HDPE (no PTFE)	20 mL	00352309065539	Grey	No	
026	0990_QC500_231212	HDPE (no PTFE)	20 mL	00351221011560	Grey	No	
026	0990_QC500_231212	HDPE (no PTFE)	20 mL	00351221011591	Grey	No	
027	0990_QC101_231212	HDPE (no PTFE)	20 mL	00352309065567	Grey	No	
027	0990_QC101_231212	HDPE (no PTFE)	20 mL	00352309065476	Grey	No	
028	0990_QC201_231212	HDPE (no PTFE)	20 mL	00352309065497	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 19/12/23 0830

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:			

028	0990_QC201_231212	HDPE (no PTFE)	20 mL	00352309065464	Grey	No	
029	0990_QC102_231213	HDPE (no PTFE)	20 mL	00352309065676	Grey	No	
029	0990_QC102_231213	HDPE (no PTFE)	20 mL	00352309065513	Grey	No	
030	0990_QC202_231213	HDPE (no PTFE)	20 mL	00352309065457	Grey	No	
030	0990_QC202_231213	HDPE (no PTFE)	20 mL	00352309065518	Grey	No	
031	0990_QC301_231213	HDPE (no PTFE)	20 mL	00351221011691	Grey	No	
031	0990_QC301_231213	HDPE (no PTFE)	20 mL	00351221011475	Grey	No	
032	0990_QC401_231213	HDPE (no PTFE)	20 mL	00352309065450	Grey	No	
032	0990_QC401_231213	HDPE (no PTFE)	20 mL	00352309065597	Grey	No	

Total Bottle Count: ALS: 62, Non ALS: 1

PE

AECo49|231117/dw

RECEIVED 17 NOV 2023 BY: [redacted] 6.4°C

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT (List due date): V24/11
OFFICE:		☐ Non Standard or urgent TAT (List due date):
PROJECT: ~~NB_0090_PFASMONIT_23~~ NT_0990_PFASMONIT_23	ALS QUOTE NO.:	
ORDER NUMBER: ~~60612561~~ 60612561/3.1	SY/139/19 V3	
PROJECT MANAGER: James Guzman	CONTACT PH:	
SAMPLER [redacted]	SAMPLER MOBILE: [redacted]	
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed) [redacted]		
Email Invoice to (will default to PM if no other addresses are listed) [redacted]		

COC SEQUENCE NUMBER (Circle): COC: (1) 2 3 4 5 6 7; OF: (1) 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:	°C		
Other comments:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
AECOM [redacted]	Nighthawk Katherine.		[redacted]
DATE/TIME: 14.11.23	DATE/TIME: 14.11.23	DATE/TIME:	DATE/TIME: 16/11/23 0830

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

All QC2XX's to be forward to NMI Sydney Please 13/11/23 10:20

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).				Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS				
1	0990-SW016-231113	13.11.23	W	PFAS	3	X				Extra vol for lab QC
2	0990-SW049-231113				2	X				
3	0990-SW140-231113				2	X				
4	0990-SW188-231113				2	X				
5	0990-SW350-231113				2	X				
6	0990-SW021-231113				2	X				
7	0990-QC100-231113				2	X				
8	0990-QC200-231113				2	X				ASTHOD TO NMI
9	0990-QC300-231113				2	X				
10	0990-QC400-231113				2	X				
11	0990-QC500-231113				2	X				
				TOTAL						

Environmental Division Sydney
Work Order Reference
ES2339515

N23/024306

LAB OF ORIGIN: DARWIN

Subcon. [redacted] Split W.O
Lab / Analysis NMI
Organised By / Date
Relinquished By / Date: QC PWO
Courier: ES2339515
W.O No.
Attach

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 Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

CHAIN OF CUSTODY

(ALS) COC#: 59911 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: [redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

TURNAROUND REQUIREMENTS : 5 Days

Biohazard (Y/N)

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:

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
022	0990_POT227_231114		14/11/2023 01:39 PM	WATER	ALS: 0 Non ALS: 0	No	X		
023	0990_POT228_231115		15/11/2023 06:33 PM	WATER	ALS: 0 Non ALS: 0	No	X		
024	0990_QC100_231113			WATER	ALS: 0 Non ALS: 0	No	X		
025	0990_QC101_231113		13/11/2023 04:23 PM	WATER	ALS: 0 Non ALS: 0	No	X		
026	0990_QC102_231114			WATER	ALS: 0 Non ALS: 0	No	X		
~~027~~	0990_QC200_231113		13/11/2023 04:23 PM	WATER	ALS: 0 Non ALS: 0	No	X	Forward to NMI for analysis	N23/024778
~~028~~	0990_QC201_231113		13/11/2023 04:24 PM	WATER	ALS: 0 Non ALS: 0	No	X	Forward to NMI for analysis	N23/024779

AECOL /231123A

Due: 30/11/23

RECEIVED

23 NOV 2023

BY: AQ.....1610 C

3 Samples.

CHAIN OF CUSTODY

(ALS) COC#: 39911 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY: [redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: 2061250142.1

TURNAROUND REQUIREMENTS: 5 Days

Biohazard Info:

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

LABORATORY USE ONLY (Circle)

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
~~029~~	0990_QC202_231114		14/11/2023 11:09 AM	WATER	ALS: 0 Non ALS: 0	No	X	Forward to NMI for analysis	N23/024780
030	0990_QC300_231113			WATER	ALS: 0 Non ALS: 0	No	X		
031	0990_QC301_231114			WATER	ALS: 0 Non ALS: 0	No	X		
032	0990_QC400_231113			WATER	ALS: 0 Non ALS: 0	No	X		
033	0990_QC401_231114			WATER	ALS: 0 Non ALS: 0	No	X		
034	0990_QC500_231113			WATER	ALS: 0 Non ALS: 0	No	X		
035	0990_POT229_231115		15/11/2023 06:34 PM	WATER	ALS: 0 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 59911 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: [illegible]

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS 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:

Environmental Division Sydney

Work Order Reference

ES2340047

Telephone : + 61-2-8784 8555

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_POT112_231113		13/11/2023 12:25 PM	WATER	ALS: 0 Non ALS: 0	No	X		
002	0990_POT128_231113		13/11/2023 12:28 PM	WATER	ALS: 0 Non ALS: 0	No	X		
003	0990_POT113_231113		13/11/2023 12:36 PM	WATER	ALS: 0 Non ALS: 0	No	X		
004	0990_POT129_231113		13/11/2023 12:52 PM	WATER	ALS: 0 Non ALS: 0	No	X		
005	0990_OTH119_231113		13/11/2023 01:08 PM	WATER	ALS: 0 Non ALS: 0	No	X		
006	0990_POT126_231113		13/11/2023 04:22 PM	WATER	ALS: 0 Non ALS: 0	No	X		
007	0990_POT131_231113		13/11/2023 06:08 PM	WATER	ALS: 0 Non ALS: 0	No	X		

Subcon / Forward / Split WO

Lab / Analysis: NMI

Organised By / Date:

Relinquished By / Date:

Courier: QC FWP

WO No: ES2340047

Attach By PO / Internal Sheet:

CHAIN OF CUSTODY

(ALS) COC#: 59911 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

[redacted]

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 22/11/23 0830

TURNAROUND REQUIREMENTS: 5 Days

Biohazard Info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_OTH117_231114		14/11/2023 01:05 PM	WATER	ALS: 0 Non ALS: 0	No	X		
009	0990_POT130_231114		14/11/2023 09:54 AM	WATER	ALS: 0 Non ALS: 0	No	X		
010	0990_POT121_231114		14/11/2023 09:55 AM	WATER	ALS: 0 Non ALS: 0	No	X		
011	0990_POT201_231114		14/11/2023 10:56 AM	WATER	ALS: 0 Non ALS: 0	No	X		
012	0990_POT198_231114		14/11/2023 11:08 AM	WATER	ALS: 0 Non ALS: 0	No	X		
013	0990_POT124_231113		13/11/2023 03:35 PM	WATER	ALS: 0 Non ALS: 0	No	X		
014	0990_POT125_231113		13/11/2023 03:24 PM	WATER	ALS: 0 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 59911 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal - Private Property

ORDER NO: 6961754170.1

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:

PROJECT MANAGER [redacted]
PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_POT120_231113		13/11/2023 02:37 PM	WATER	ALS: 0 Non ALS: 0	No	X		
016	0990_POT114_231113		13/11/2023 03:46 PM	WATER	ALS: 0 Non ALS: 0	No	X		
017	0990_OTH118_231113		13/11/2023 02:49 PM	WATER	ALS: 0 Non ALS: 0	No	X		
018	0990_POT127_231113		13/11/2023 02:51 PM	WATER	ALS: 0 Non ALS: 0	No	X		
019	0990_POT224_231113		13/11/2023 09:38 AM	WATER	ALS: 0 Non ALS: 0	No	X		
020	0990_POT225_231114		14/11/2023 01:38 PM	WATER	ALS: 0 Non ALS: 0	No	X		
021	0990_POT226_231114		14/11/2023 01:39 PM	WATER	ALS: 0 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 59911 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 22/11/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property

[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:

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU003

EMAIL REPORTS TO: [redacted]

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
036	0990_POT230_231115		15/11/2023 06:35 PM	WATER	ALS: 0 Non ALS: 0	No	X		
037	0990_QC302_231115		15/11/2023 06:37 PM	WATER	ALS: 0 Non ALS: 0	No	X		
038	0990_QC302_231115		15/11/2023 06:37 PM	WATER	ALS: 0 Non ALS: 0	No	X		

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

CHAIN OF CUSTODY

ALS COC#: 61426 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 14/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS 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: √5/1

AEC006/23/2203 Am

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
022	0990_QC100_231212		12/12/2023 05:10 PM	WATER	ALS: 2 Non ALS: 0	No		X		
023	0990_QC200_231212		12/12/2023 04:40 PM	WATER	ALS: 2 Non ALS: 0	No		X		N23/027134
024	0990_QC300_231212		12/12/2023 04:29 PM	WATER	ALS: 2 Non ALS: 0	No		X		
025	0990_QC400_231212		12/12/2023 04:29 PM	WATER	ALS: 2 Non ALS: 0	No		X		
026	0990_QC500_231212		12/12/2023 04:28 PM	WATER	ALS: 2 Non ALS: 0	No		X		
027	0990_QC101_231212		12/12/2023 05:42 PM	WATER	ALS: 2 Non ALS: 0	No		X		
028	0990_QC201_231212	Pls forward to NMI	12/12/2023 05:43 PM	WATER	ALS: 2 Non ALS: 0	No		X		N23/027136

Received one extra sample QC-200 12/12/23

RECEIVED 20 DEC 2023 C BY: [redacted] 13:30

CHAIN OF CUSTODY

COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 14/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS 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 Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
029	0990_QC102_231213		13/12/2023 10:18 AM	WATER	ALS: 2 Non ALS: 0	No		X		
030	0990_QC202_231213	Forward to NMI for analysis	13/12/2023 10:18 AM	WATER	ALS: 2 Non ALS: 0	No		X		N23/[redacted]
031	0990_QC301_231213		13/12/2023 02:48 PM	WATER	ALS: 2 Non ALS: 0	No		X		
032	0990_QC401_231213		13/12/2023 02:49 PM	WATER	ALS: 2 Non ALS: 0	No		X		

RECEIVED
20 DEC 2023
BY: .....

CHAIN OF CUSTODY

COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME::	[redacted] 14/12/23 0836

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS 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:

Environmental Division Sydney

Work Order Reference

ES2343442

Telephone : + 61-2-8784 8555

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_POT231_231212		12/12/2023 02:06 PM	WATER	ALS: 2 Non ALS: 0	No		X		
002	0990_POT232_231212		12/12/2023 02:07 PM	WATER	ALS: 2 Non ALS: 0	No		X		
003	0990_POT201_231212		12/12/2023 03:41 PM	WATER	ALS: 2 Non ALS: 0	No		X		
004	0990_POT198_231212		12/12/2023 03:57 PM	WATER	ALS: 2 Non ALS: 0	No		X		
005	0990_POT125_231212		12/12/2023 04:15 PM	WATER	ALS: 2 Non ALS: 0	No		X		
006	0990_OTH118_231212		12/12/2023 04:32 PM	WATER	ALS: 2 Non ALS: 1	No		X		Extra container for lab QC
007	0990_POT127_231212		12/12/2023 05:13 PM	WATER	ALS: 2 Non ALS: 0	No		X		

Select Preferred Split WO

Lab / Analysis: NMT

Organised By / Date:

Relinquished By / Date:

Comments: QC Fwd

WO No: ES2343442

Attach By PO / Internal Sheet:

CHAIN OF CUSTODY

COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 14/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS 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 Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_POT128_231213		13/12/2023 09:26 AM	WATER	ALS: 2 Non ALS: 0	No		X		
016	0990_POT129_231213		13/12/2023 10:21 AM	WATER	ALS: 2 Non ALS: 0	No		X		
017	0990_OTH119_231213		13/12/2023 10:35 AM	WATER	ALS: 2 Non ALS: 0	No		X		
018	0990_POT233_231213			WATER	ALS: 0 Non ALS: 0	No				
019	0990_POT234_231213		13/12/2023 12:53 PM	WATER	ALS: 2 Non ALS: 0	No		X		
020	0990_POT131_231212		12/12/2023 06:31 PM	WATER	ALS: 2 Non ALS: 0	No		X		
021	0990_POT120_231212		12/12/2023 05:09 PM	WATER	ALS: 2 Non ALS: 0	No		X		

CHAIN OF CUSTODY

ALS COC#: 61426 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 19/12/23 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

EMAIL REPORTS 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 Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_POT121_231212		12/12/2023 05:55 PM	WATER	ALS: 2 Non ALS: 0	No		X		
009	0990_OTH117_231213		13/12/2023 09:04 AM	WATER	ALS: 2 Non ALS: 0	No		X		
010	0990_POT130_231213		13/12/2023 11:46 AM	WATER	ALS: 2 Non ALS: 0	No		X		
011	0990_POT124_231212		12/12/2023 05:40 PM	WATER	ALS: 2 Non ALS: 0	No		X		
012	0990_POT114_231212		12/12/2023 05:33 PM	WATER	ALS: 2 Non ALS: 0	No		X		
013	0990_POT112_231213		13/12/2023 11:45 AM	WATER	ALS: 2 Non ALS: 0	No		X		
014	0990_POT113_231213		13/12/2023 09:38 AM	WATER	ALS: 2 Non ALS: 0	No		X		

CHAIN OF CUSTODY

ALS COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 19/12/23 0830

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	0990_POT231_231212	HDPE (no PTFE)	20 mL	00352309065573	Grey	No	
001	0990_POT231_231212	HDPE (no PTFE)	20 mL	00352309065731	Grey	No	
002	0990_POT232_231212	HDPE (no PTFE)	20 mL	00352309065534	Grey	No	
002	0990_POT232_231212	HDPE (no PTFE)	20 mL	00352309065718	Grey	No	
003	0990_POT201_231212	HDPE (no PTFE)	20 mL	00352309065474	Grey	No	
003	0990_POT201_231212	HDPE (no PTFE)	20 mL	00352309065473	Grey	No	
004	0990_POT198_231212	HDPE (no PTFE)	20 mL	00352309065589	Grey	No	
004	0990_POT198_231212	HDPE (no PTFE)	20 mL	00352309065592	Grey	No	
005	0990_POT125_231212	HDPE (no PTFE)	20 mL	00351221009376	Grey	No	
005	0990_POT125_231212	HDPE (no PTFE)	20 mL	00351221009355	Grey	No	
006	0990_OTH118_231212	HDPE (no PTFE)	20 mL	00352309065691	Grey	No	
006	0990_OTH118_231212	HDPE (no PTFE)	20 mL	00352309065695	Grey	No	
007	0990_POT127_231212	HDPE (no PTFE)	20 mL	00352309065554	Grey	No	
007	0990_POT127_231212	HDPE (no PTFE)	20 mL	00352309065666	Grey	No	
008	0990_POT121_231212	HDPE (no PTFE)	20 mL	00352309065537	Grey	No	
008	0990_POT121_231212	HDPE (no PTFE)	20 mL	00352309065560	Grey	No	
009	0990_OTH117_231213	HDPE (no PTFE)	20 mL	00352309065591	Grey	No	
009	0990_OTH117_231213	HDPE (no PTFE)	20 mL	00352309065716	Grey	No	
010	0990_POT130_231213	HDPE (no PTFE)	20 mL	00351221011383	Grey	No	
010	0990_POT130_231213	HDPE (no PTFE)	20 mL	00351221011393	Grey	No	
011	0990_POT124_231212	HDPE (no PTFE)	20 mL	00352309065651	Grey	No	
011	0990_POT124_231212	HDPE (no PTFE)	20 mL	00352309065704	Grey	No	
012	0990_POT114_231212	HDPE (no PTFE)	20 mL	00352309065484	Grey	No	
012	0990_POT114_231212	HDPE (no PTFE)	20 mL	00352309065660	Grey	No	
013	0990_POT112_231213	HDPE (no PTFE)	20 mL	00352309065659	Grey	No	
013	0990_POT112_231213	HDPE (no PTFE)	20 mL	00352309065601	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 61426 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU003 0

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 19/12/23 0830

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:

014	0990_POT113_231213	HDPE (no PTFE)	20 mL	00352309065608	Grey	No	
014	0990_POT113_231213	HDPE (no PTFE)	20 mL	00352309065698	Grey	No	
015	0990_POT128_231213	HDPE (no PTFE)	20 mL	00352309065717	Grey	No	
015	0990_POT128_231213	HDPE (no PTFE)	20 mL	00352309065655	Grey	No	
016	0990_POT129_231213	HDPE (no PTFE)	20 mL	00352309065469	Grey	No	
016	0990_POT129_231213	HDPE (no PTFE)	20 mL	00352309065548	Grey	No	
017	0990_OTH119_231213	HDPE (no PTFE)	20 mL	00352309065673	Grey	No	
017	0990_OTH119_231213	HDPE (no PTFE)	20 mL	00352309065553	Grey	No	
019	0990_POT234_231213	HDPE (no PTFE)	20 mL	00351221011614	Grey	No	
019	0990_POT234_231213	HDPE (no PTFE)	20 mL	00351221011344	Grey	No	
020	0990_POT131_231212	HDPE (no PTFE)	20 mL	00352309065525	Grey	No	
020	0990_POT131_231212	HDPE (no PTFE)	20 mL	00352309065494	Grey	No	
021	0990_POT120_231212	HDPE (no PTFE)	20 mL	00352309065448	Grey	No	
021	0990_POT120_231212	HDPE (no PTFE)	20 mL	00352309065544	Grey	No	
022	0990_QC100_231212	HDPE (no PTFE)	20 mL	00352309065530	Grey	No	
022	0990_QC100_231212	HDPE (no PTFE)	20 mL	00352309065489	Grey	No	
023	0990_QC200_231212	HDPE (no PTFE)	20 mL	00352309065433	Grey	No	
023	0990_QC200_231212	HDPE (no PTFE)	20 mL	00352309065498	Grey	No	
024	0990_QC300_231212	HDPE (no PTFE)	20 mL	00352309065538	Grey	No	
024	0990_QC300_231212	HDPE (no PTFE)	20 mL	00352309065694	Grey	No	
025	0990_QC400_231212	HDPE (no PTFE)	20 mL	00352309065690	Grey	No	
025	0990_QC400_231212	HDPE (no PTFE)	20 mL	00352309065539	Grey	No	
026	0990_QC500_231212	HDPE (no PTFE)	20 mL	00351221011560	Grey	No	
026	0990_QC500_231212	HDPE (no PTFE)	20 mL	00351221011591	Grey	No	
027	0990_QC101_231212	HDPE (no PTFE)	20 mL	00352309065562	Grey	No	
027	0990_QC101_231212	HDPE (no PTFE)	20 mL	00352309065476	Grey	No	
028	0990_QC201_231212	HDPE (no PTFE)	20 mL	00352309065497	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 61426 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_23

SITE: Tindal Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 19/12/23 0830

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:

028	0990_QC201_231212	HDPE (no PTFE)	20 mL	00352309065464	Grey	No	
029	0990_QC102_231213	HDPE (no PTFE)	20 mL	00352309065676	Grey	No	
029	0990_QC102_231213	HDPE (no PTFE)	20 mL	00352309065513	Grey	No	
030	0990_QC202_231213	HDPE (no PTFE)	20 mL	00352309065457	Grey	No	
030	0990_QC202_231213	HDPE (no PTFE)	20 mL	00352309065518	Grey	No	
031	0990_QC301_231213	HDPE (no PTFE)	20 mL	00351221011891	Grey	No	
031	0990_QC301_231213	HDPE (no PTFE)	20 mL	00351221011475	Grey	No	
032	0990_QC401_231213	HDPE (no PTFE)	20 mL	00352309065450	Grey	No	
032	0990_QC401_231213	HDPE (no PTFE)	20 mL	00352309065597	Grey	No	

Total Bottle Count: ALS: 62, Non ALS: 1

[redacted]

From: [redacted]
Sent:
To:
Subject: Re: Extra samples received 0990_200_231212 and 1200_QC200_231211 [SEC=OFFICIAL]

OFFICIAL

CAUTION - This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi [redacted]

Could we please schedule these two for PFAS?

Thanks,

[redacted]

I acknowledge the Traditional Custodians of the Country on which we work and learn every day, and pay my respects to Elders past, present and future.

[redacted]

CHAIN OF CUSTODY

COC#: 62444 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 18/1/24 0830

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_OTH118_240116		16/01/2024 09:48 AM	WATER	ALS: 3 Non ALS: 0	No	X		Extra for lab QC
002	0990_OTH119_240115		15/01/2024 01:45 PM	WATER	ALS: 2 Non ALS: 0	No	X		
003	0990_POT112_240115		15/01/2024 01:35 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0990_POT113_240115	Extra volume for lab QC	15/01/2024 01:25 PM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0990_POT120_240116		16/01/2024 10:15 AM	WATER	ALS: 3 Non ALS: 0	No	X		Extra volume for lab QC
006	0990_POT121_240115		15/01/2024 12:55 PM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_POT124_240116		16/01/2024 09:22 AM	WATER	ALS: 2 Non ALS: 0	No	X		

Subcon / Forward / Split WO
Lab / Analysis: NMI
Organised By / Date:
Relinquished By / Date:
Connote / Courier: QC Fwd
WO No: ES2401443
Attach By PO / Internal Sheet:

Environmental Division
Sydney
Work Order Reference
ES2401443

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS TO: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_POT125_240115		15/01/2024 01:51 PM	WATER	ALS: 2 Non ALS: 0	No	X		
009	0990_POT127_240116		16/01/2024 10:02 AM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_POT128_240115		15/01/2024 01:20 PM	WATER	ALS: 2 Non ALS: 0	No	X		
011	0990_POT129_240115		15/01/2024 01:02 PM	WATER	ALS: 2 Non ALS: 0	No	X		
012	0990_POT130_240116		16/01/2024 10:26 AM	WATER	ALS: 2 Non ALS: 0	No	X		
013	0990_POT131_240115		15/01/2024 06:09 PM	WATER	ALS: 2 Non ALS: 0	No	X		
014	0990_POT198_240116		16/01/2024 09:38 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_POT201_240115		15/01/2024 01:59 PM	WATER	ALS: 2 Non ALS: 0	No	X		
016	0990_SW108_240116	Extra volume for lab QC	16/01/2024 11:36 AM	WATER	ALS: 3 Non ALS: 0	No	X		
017	0990_SW153_240116		16/01/2024 11:47 AM	WATER	ALS: 3 Non ALS: 0	No	X		
018	0990_QC100_240115		15/01/2024 01:03 PM	WATER	ALS: 2 Non ALS: 0	No	X		
019	0990_QC101_240116		16/01/2024 09:49 AM	WATER	ALS: 2 Non ALS: 0	No	X		
020	0990_QC102_240116		16/01/2024 10:16 AM	WATER	ALS: 2 Non ALS: 0	No	X		
[redacted]	0990_QC200_240115	Send to NMI please	15/01/2024 01:05 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 62444 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 606125613.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
[redacted]	0990_QC201_240116	Send to NMI please	16/01/2024 09:50 AM	WATER	ALS: 2 Non ALS: 0	No	X		
[redacted]	0990_QC202_240116	Please forward to NMI	16/01/2024 10:16 AM	WATER	ALS: 2 Non ALS: 0	No	X		
024	0990_QC300_240115		15/01/2024 01:07 PM	WATER	ALS: 2 Non ALS: 0	No	X		
025	0990_QC301_240116		16/01/2024 10:04 AM	WATER	ALS: 2 Non ALS: 0	No	X		
026	0990_QC400_240115		15/01/2024 01:08 PM	WATER	ALS: 2 Non ALS: 0	No	X		
027	0990_QC401_240116		16/01/2024 10:05 AM	WATER	ALS: 2 Non ALS: 0	No	X		
028	0990_QC500_240115		15/01/2024 01:03 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 606125613.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
029	0990_OTH008_240116		16/01/2024 01:17 PM	WATER	ALS: 2 Non ALS: 0	No	X		
030	0990_POT235_240116		16/01/2024 12:32 PM	WATER	ALS: 2 Non ALS: 0	No	X		
031	0990_OTH129_240116	Sludge	16/01/2024 12:33 PM	SOLID	ALS: 1 Non ALS: 0	No	X		
032	0990_QC103_240116	Sludge	16/01/2024 01:27 PM	SOLID	ALS: 1 Non ALS: 0	No	X		
[redacted]	0990_QC203_240116	Slude, pls forward to NMI for analysis	16/01/2024 01:28 PM	SOLID	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

EMAIL REPORTS 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	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0990_OTH118_240116	HDPE (no PTFE)	20 mL	00350822016183	Grey	No	
001	0990_OTH118_240116	HDPE (no PTFE)	20 mL	00350822016491	Grey	No	
001	0990_OTH118_240116	HDPE (no PTFE)	20 mL	00350219006387	Grey	No	
002	0990_OTH119_240115	HDPE (no PTFE)	20 mL	00350822016553	Grey	No	
002	0990_OTH119_240115	HDPE (no PTFE)	20 mL	00350822015819	Grey	No	
003	0990_POT112_240115	HDPE (no PTFE)	20 mL	00350822016068	Grey	No	
003	0990_POT112_240115	HDPE (no PTFE)	20 mL	00350822016235	Grey	No	
004	0990_POT113_240115	HDPE (no PTFE)	20 mL	00350822016441	Grey	No	
004	0990_POT113_240115	HDPE (no PTFE)	20 mL	00350822016336	Grey	No	
004	0990_POT113_240115	HDPE (no PTFE)	20 mL	00351219036805	Grey	No	
005	0990_POT120_240116	HDPE (no PTFE)	20 mL	00350822016292	Grey	No	
005	0990_POT120_240116	HDPE (no PTFE)	20 mL	00350822016433	Grey	No	
005	0990_POT120_240116	HDPE (no PTFE)	20 mL	00350219006469	Grey	No	
006	0990_POT121_240115	HDPE (no PTFE)	20 mL	00350822016230	Grey	No	
006	0990_POT121_240115	HDPE (no PTFE)	20 mL	00350822016271	Grey	No	
007	0990_POT124_240116	HDPE (no PTFE)	20 mL	00350822016317	Grey	No	
007	0990_POT124_240116	HDPE (no PTFE)	20 mL	00350822016241	Grey	No	
008	0990_POT125_240115	HDPE (no PTFE)	20 mL	00350822016429	Grey	No	
008	0990_POT125_240115	HDPE (no PTFE)	20 mL	00350822016268	Grey	No	
009	0990_POT127_240116	HDPE (no PTFE)	20 mL	00350822016056	Grey	No	
009	0990_POT127_240116	HDPE (no PTFE)	20 mL	00350822016417	Grey	No	
010	0990_POT128_240115	HDPE (no PTFE)	20 mL	00350822016249	Grey	No	
010	0990_POT128_240115	HDPE (no PTFE)	20 mL	00350822016460	Grey	No	
011	0990_POT129_240115	HDPE (no PTFE)	20 mL	00350822016123	Grey	No	
011	0990_POT129_240115	HDPE (no PTFE)	20 mL	00350822016410	Grey	No	
012	0990_POT130_240116	HDPE (no PTFE)	20 mL	00350822016294	Grey	No	

CHAIN OF CUSTODY

COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

EMAIL REPORTS 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:			

012	0990_POT130_240116	HDPE (no PTFE)	20 mL	00350822016431	Grey	No	
013	0990_POT131_240115	HDPE (no PTFE)	20 mL	00350822016299	Grey	No	
013	0990_POT131_240115	HDPE (no PTFE)	20 mL	00350822016315	Grey	No	
014	0990_POT198_240116	HDPE (no PTFE)	20 mL	00350822016265	Grey	No	
014	0990_POT198_240116	HDPE (no PTFE)	20 mL	00350822016226	Grey	No	
015	0990_POT201_240115	HDPE (no PTFE)	20 mL	00350822016302	Grey	No	
015	0990_POT201_240115	HDPE (no PTFE)	20 mL	00350822016390	Grey	No	
016	0990_SW106_240116	HDPE (no PTFE)	20 mL	00350219006479	Grey	No	
016	0990_SW106_240116	HDPE (no PTFE)	20 mL	00350822016144	Grey	No	
016	0990_SW106_240116	HDPE (no PTFE)	20 mL	00350822016293	Grey	No	
017	0990_SW153_240116	HDPE (no PTFE)	20 mL	00350822016467	Grey	No	
017	0990_SW153_240116	HDPE (no PTFE)	20 mL	00350822016594	Grey	No	
017	0990_SW153_240116	HDPE (no PTFE)	20 mL	00350219006510	Grey	No	
018	0990_QC100_240115	HDPE (no PTFE)	20 mL	00350822016468	Grey	No	
018	0990_QC100_240115	HDPE (no PTFE)	20 mL	00350822016531	Grey	No	
019	0990_QC101_240116	HDPE (no PTFE)	20 mL	00350822016455	Grey	No	
019	0990_QC101_240116	HDPE (no PTFE)	20 mL	00350822015884	Grey	No	
020	0990_QC102_240116	HDPE (no PTFE)	20 mL	00350822015682	Grey	No	
020	0990_QC102_240116	HDPE (no PTFE)	20 mL	00350822016197	Grey	No	
021	0990_QC200_240115	HDPE (no PTFE)	20 mL	00350822016368	Grey	No	
021	0990_QC200_240115	HDPE (no PTFE)	20 mL	00350822016305	Grey	No	
022	0990_QC201_240116	HDPE (no PTFE)	20 mL	00350822016501	Grey	No	
022	0990_QC201_240116	HDPE (no PTFE)	20 mL	00350822016456	Grey	No	
023	0990_QC202_240116	HDPE (no PTFE)	20 mL	00350822016193	Grey	No	
023	0990_QC202_240116	HDPE (no PTFE)	20 mL	00350822016613	Grey	No	
024	0990_QC300_240115	HDPE (no PTFE)	20 mL	00350822016641	Grey	No	
024	0990_QC300_240115	HDPE (no PTFE)	20 mL	00350822016563	Grey	No	

CHAIN OF CUSTODY

COC#: 62444 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 18/1/24 0830

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:

025	0990_QC301_240116	HDPE (no PTFE)	20 mL	00350822016597	Grey	No	
025	0990_QC301_240116	HDPE (no PTFE)	20 mL	00350822016124	Grey	No	
026	0990_QC400_240115	HDPE (no PTFE)	20 mL	00350822015981	Grey	No	
026	0990_QC400_240115	HDPE (no PTFE)	20 mL	00350822016384	Grey	No	
027	0990_QC401_240116	HDPE (no PTFE)	20 mL	00350822016458	Grey	No	
027	0990_QC401_240116	HDPE (no PTFE)	20 mL	00350822016351	Grey	No	
028	0990_QC500_240115	HDPE (no PTFE)	20 mL	00352309042669	Grey	No	
028	0990_QC500_240115	HDPE (no PTFE)	20 mL	00352309042477	Grey	No	
029	0990_OTH008_240116	HDPE (no PTFE)	20 mL	00350822015985	Grey	No	
029	0990_OTH008_240116	HDPE (no PTFE)	20 mL	00350822015972	Grey	No	
030	0990_POT235_240116	HDPE (no PTFE)	20 mL	00350822015807	Grey	No	
030	0990_POT235_240116	HDPE (no PTFE)	20 mL	00350822016349	Grey	No	
031	0990_OTH129_240116	HDPE Soil Jar	200 mL	00621122008745	Grey	No	
032	0990_QC103_240116	HDPE Soil Jar	200 mL	00621122008734	Grey	No	
033	0990_QC203_240116	HDPE Soil Jar	200 mL	00621122008626	Grey	No	

Total Bottle Count: ALS: 68, Non ALS: 0

CHAIN OF CUSTODY

COC#: 63694 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

SITE: Autosampler

ORDER NO: 60676801

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	[redacted]
DATE TIME:	DATE TIME:	DATE TIME:	15/2/24 0830

TURNAROUND REQUIREMENTS: 5 Days

Biohazard Info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free Ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_SW016_01_240212		12/02/2024 06:23 PM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0990_SW016_02_240212		12/02/2024 06:30 PM	WATER	ALS: 2 Non ALS: 0	No	X		
003	0990_SW016_03_240212		12/02/2024 06:30 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0990_SW016_04_240212		12/02/2024 06:33 PM	WATER	ALS: 2 Non ALS: 0	No	X		
005	0990_SW016_05_240212		12/02/2024 06:36 PM	WATER	ALS: 2 Non ALS: 0	No	X		
006	0990_SW016_06_240212		12/02/2024 06:37 PM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_SW016_07_240212		12/02/2024 06:37 PM	WATER	ALS: 2 Non ALS: 0	No	X		

Environmental Division
Sydney
Work Order Reference
ES2404747

Telephone : +61-2-8784 8555

Subcon / Forward Lab / Split WO: _____

Lab / Analysis: NMI

Organised By / Date: _____

Relinquished By / Date: _____

Connote / Courier: QC FWD

WO No: ES2404747

Attached By PO / Internal Sheet: _____

CHAIN OF CUSTODY

COC#: 63694 — *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

SITE: Autosampler

ORDER NO: 60676801

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_SW016_08_240212		12/02/2024 06:37 PM	WATER	ALS: 2 Non ALS: 0	No	X		
009	0990_SW016_09_240212		12/02/2024 06:38 PM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_SW016_10_240212		12/02/2024 06:39 PM	WATER	ALS: 2 Non ALS: 0	No	X		
011	0990_SW016_11_240212		12/02/2024 06:39 PM	WATER	ALS: 2 Non ALS: 0	No	X		
012	0990_SW016_12_240212		12/02/2024 06:40 PM	WATER	ALS: 2 Non ALS: 0	No	X		
013	0990_SW016_13_240212		12/02/2024 06:40 PM	WATER	ALS: 2 Non ALS: 0	No	X		
014	0990_SW016_14_240212		12/02/2024 06:40 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 63694 — *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

SITE: Autosampler

ORDER NO: 60676801

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_SW016_15_240212		12/02/2024 06:41 PM	WATER	ALS: 2 Non ALS: 0	No	X		
016	0990_SW016_16_240212		12/02/2024 06:42 PM	WATER	ALS: 2 Non ALS: 0	No	X		
017	0990_SW016_17_240212		12/02/2024 06:43 PM	WATER	ALS: 2 Non ALS: 0	No	X		
018	0990_SW016_18_240212		12/02/2024 06:43 PM	WATER	ALS: 2 Non ALS: 0	No	X		
019	0990_SW016_19_240212		12/02/2024 06:45 PM	WATER	ALS: 2 Non ALS: 0	No	X		
020	0990_SW016_20_240212		12/02/2024 06:47 PM	WATER	ALS: 2 Non ALS: 0	No	X		
021	0990_SW016_21_240212		13/02/2024 11:16 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 63694 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

SITE: Autosampler

ORDER NO: 60676801

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS 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 DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
022	0990_SW016_22_240212		12/02/2024 06:46 PM	WATER	ALS: 2 Non ALS: 0	No	X		
023	0990_SW016_23_240212		12/02/2024 06:54 PM	WATER	ALS: 2 Non ALS: 0	No	X		
024	0990_SW016_24_240212		12/02/2024 07:00 PM	WATER	ALS: 2 Non ALS: 0	No	X		
025	0990_QC110_240212		12/02/2024 07:03 PM	WATER	ALS: 2 Non ALS: 0	No	X		
[redacted]	0990_QC210_240212	Please forward to nmi	12/02/2024 07:08 PM	WATER	ALS: 2 Non ALS: 0	No	X		
027	0990_QC111_240212		12/02/2024 07:10 PM	WATER	ALS: 2 Non ALS: 0	No	X		
[redacted]	0990_QC211_240212	Please forward to nmi	12/02/2024 07:10 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 63694 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

SITE: Autosampler

ORDER NO: 60676801

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
029	0990_QC112_240212		12/02/2024 07:10 PM	WATER	ALS: 2 Non ALS: 0	No	X		
[redacted]	0990_QC212_240212	Please forward to nmi	12/02/2024 07:10 PM	WATER	ALS: 2 Non ALS: 0	No	X		
031	0990_QC310_240212		14/02/2024 03:56 PM	WATER	ALS: 2 Non ALS: 0	No	X		
032	0990_QC410_240212		14/02/2024 03:57 PM	WATER	ALS: 2 Non ALS: 0	No	X		
033	0990_QC510_240212		14/02/2024 03:57 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 63694 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

SITE: Autosampler

ORDER NO: 60676801

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

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	0990_SW016_01_240212	HDPE (no PTFE)	20 mL	00350822016537	Grey	No	
001	0990_SW016_01_240212	HDPE (no PTFE)	20 mL	00350822016115	Grey	No	
002	0990_SW016_02_240212	HDPE (no PTFE)	20 mL	00350822016105	Grey	No	
002	0990_SW016_02_240212	HDPE (no PTFE)	20 mL	00350822015904	Grey	No	
003	0990_SW016_03_240212	HDPE (no PTFE)	20 mL	00350822016216	Grey	No	
003	0990_SW016_03_240212	HDPE (no PTFE)	20 mL	00350822015945	Grey	No	
004	0990_SW016_04_240212	HDPE (no PTFE)	20 mL	00350822016196	Grey	No	
004	0990_SW016_04_240212	HDPE (no PTFE)	20 mL	00350822015809	Grey	No	
005	0990_SW016_05_240212	HDPE (no PTFE)	20 mL	00350822015978	Grey	No	
005	0990_SW016_05_240212	HDPE (no PTFE)	20 mL	00350822015766	Grey	No	
006	0990_SW016_06_240212	HDPE (no PTFE)	20 mL	00350822015876	Grey	No	
006	0990_SW016_06_240212	HDPE (no PTFE)	20 mL	00350822015773	Grey	No	
007	0990_SW016_07_240212	HDPE (no PTFE)	20 mL	00350822016208	Grey	No	
007	0990_SW016_07_240212	HDPE (no PTFE)	20 mL	00350822016240	Grey	No	
008	0990_SW016_08_240212	HDPE (no PTFE)	20 mL	00350822016066	Grey	No	
008	0990_SW016_08_240212	HDPE (no PTFE)	20 mL	00350822015802	Grey	No	
009	0990_SW016_09_240212	HDPE (no PTFE)	20 mL	00350822016397	Grey	No	
009	0990_SW016_09_240212	HDPE (no PTFE)	20 mL	00350822016067	Grey	No	
010	0990_SW016_10_240212	HDPE (no PTFE)	20 mL	00350822015865	Grey	No	
010	0990_SW016_10_240212	HDPE (no PTFE)	20 mL	00350822015926	Grey	No	
011	0990_SW016_11_240212	HDPE (no PTFE)	20 mL	00350822015965	Grey	No	
011	0990_SW016_11_240212	HDPE (no PTFE)	20 mL	00350822016011	Grey	No	
012	0990_SW016_12_240212	HDPE (no PTFE)	20 mL	00350822015753	Grey	No	
012	0990_SW016_12_240212	HDPE (no PTFE)	20 mL	00350822015757	Grey	No	
013	0990_SW016_13_240212	HDPE (no PTFE)	20 mL	00350822016250	Grey	No	
013	0990_SW016_13_240212	HDPE (no PTFE)	20 mL	00350822016399	Grey	No	

CHAIN OF CUSTODY

COC#: 63694 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

SITE: Autosampler

ORDER NO: 60676801

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS 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:

014	0990_SW016_14_240212	HDPE (no PTFE)	20 mL	00350822015071	Grey	No	
014	0990_SW016_14_240212	HDPE (no PTFE)	20 mL	00350822016251	Grey	No	
015	0990_SW016_15_240212	HDPE (no PTFE)	20 mL	00350822016518	Grey	No	
015	0990_SW016_15_240212	HDPE (no PTFE)	20 mL	00350822016585	Grey	No	
016	0990_SW016_16_240212	HDPE (no PTFE)	20 mL	00350822015792	Grey	No	
016	0990_SW016_16_240212	HDPE (no PTFE)	20 mL	00350822016642	Grey	No	
017	0990_SW016_17_240212	HDPE (no PTFE)	20 mL	00350822016163	Grey	No	
017	0990_SW016_17_240212	HDPE (no PTFE)	20 mL	00350822016458	Grey	No	
018	0990_SW016_18_240212	HDPE (no PTFE)	20 mL	00350822016503	Grey	No	
018	0990_SW016_18_240212	HDPE (no PTFE)	20 mL	00350822015889	Grey	No	
019	0990_SW016_19_240212	HDPE (no PTFE)	20 mL	00350822016423	Grey	No	
019	0990_SW016_19_240212	HDPE (no PTFE)	20 mL	00350822016238	Grey	No	
020	0990_SW016_20_240212	HDPE (no PTFE)	20 mL	00350822016013	Grey	No	
020	0990_SW016_20_240212	HDPE (no PTFE)	20 mL	00350822015772	Grey	No	
021	0990_SW016_21_240212	HDPE (no PTFE)	20 mL	00350822016111	Grey	No	
021	0990_SW016_21_240212	HDPE (no PTFE)	20 mL	00350822016275	Grey	No	
022	0990_SW016_22_240212	HDPE (no PTFE)	20 mL	00350822016172	Grey	No	
022	0990_SW016_22_240212	HDPE (no PTFE)	20 mL	00350822016508	Grey	No	
023	0990_SW016_23_240212	HDPE (no PTFE)	20 mL	00350822016164	Grey	No	
023	0990_SW016_23_240212	HDPE (no PTFE)	20 mL	00350822016922	Grey	No	
024	0990_SW016_24_240212	HDPE (no PTFE)	20 mL	00350822015959	Grey	No	
024	0990_SW016_24_240212	HDPE (no PTFE)	20 mL	00350822016244	Grey	No	
025	0990_QC110_240212	HDPE (no PTFE)	20 mL	00350822015949	Grey	No	
025	0990_QC110_240212	HDPE (no PTFE)	20 mL	00350822016352	Grey	No	
026	0990_QC210_240212	HDPE (no PTFE)	20 mL	00350822015877	Grey	No	
026	0990_QC210_240212	HDPE (no PTFE)	20 mL	00350822015840	Grey	No	
027	0990_QC111_240212	HDPE (no PTFE)	20 mL	00350822016490	Grey	No	

CHAIN OF CUSTODY

COC#: 63694 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAD - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

SITE: Autosampler

ORDER NO: 60676801

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: [redacted] 15/2/24 0830

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:

027	0990_QC311_240212	HDPE (no PTFE)	20 mL	00350822015811	Grey	No	
028	0990_QC211_240212	HDPE (no PTFE)	20 mL	00350822015761	Grey	No	
028	0990_QC211_240212	HDPE (no PTFE)	20 mL	00350822016335	Grey	No	
029	0990_QC112_240212	HDPE (no PTFE)	20 mL	00351221011537	Grey	No	
029	0990_QC112_240212	HDPE (no PTFE)	20 mL	00351221011617	Grey	No	
030	0990_QC212_240212	HDPE (no PTFE)	20 mL	00350822015777	Grey	No	
030	0990_QC212_240212	HDPE (no PTFE)	20 mL	00350822015799	Grey	No	
031	0990_QC310_240212	HDPE (no PTFE)	20 mL	00350822015835	Grey	No	
031	0990_QC310_240212	HDPE (no PTFE)	20 mL	00350822016549	Grey	No	
032	0990_QC410_240212	HDPE (no PTFE)	20 mL	00350822016583	Grey	No	
032	0990_QC410_240212	HDPE (no PTFE)	20 mL	00350822015862	Grey	No	
033	0990_QC510_240212	HDPE (no PTFE)	20 mL	00350822016200	Grey	No	
033	0990_QC510_240212	HDPE (no PTFE)	20 mL	00350822015803	Grey	No	

Total Bottle Count: ALS: 66, Non ALS: 0

CHAIN OF CUSTODY

ALS COC#: 63700 — ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] 15/2/24 1730	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612501/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_OTH117_240213		13/02/2024 08:57 AM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0990_OTH118_240214		14/02/2024 10:13 AM	WATER	ALS: 2 Non ALS: 0	No	X		
003	0990_OTH119_240212		13/02/2024 01:00 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0990_POT112_240213		13/02/2024 10:57 AM	WATER	ALS: 2 Non ALS: 0	No	X		
005	0990_POT113_240213		13/02/2024 11:06 AM	WATER	ALS: 2 Non ALS: 0	No	X		
006	0990_POT114_240214		14/02/2024 09:51 AM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_POT120_240214		14/02/2024 10:37 AM	WATER	ALS: 2 Non ALS: 0	No	X		

Environmental Division Sydney

Work Order Reference

ES2404922

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

ALS COC#: 63700 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] 15/2/24 1730	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 606125610.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_POT121_240213		13/02/2024 10:16 AM	WATER	ALS: 2 Non ALS: 0	No	X		
009	0990_POT124_240214		14/02/2024 09:17 AM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_POT125_240213		13/02/2024 01:24 PM	WATER	ALS: 2 Non ALS: 0	No	X		
011	0990_POT127_240214		14/02/2024 10:33 AM	WATER	ALS: 2 Non ALS: 0	No	X		
012	0990_POT128_240212		13/02/2024 12:06 PM	WATER	ALS: 2 Non ALS: 0	No	X		
013	0990_POT129_240213		13/02/2024 11:30 AM	WATER	ALS: 2 Non ALS: 0	No	X		
014	0990_POT130_240214		14/02/2024 09:59 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 63700 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE: / ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 15/2/24 1730	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Water WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_ROT131_240213		13/02/2024 01:44 PM	WATER	ALS: 2 Non ALS: 0	No	X		
016	0990_ROT198_240214		14/02/2024 09:28 AM	WATER	ALS: 2 Non ALS: 0	No	X		
017	0990_ROT201_240213		13/02/2024 09:35 AM	WATER	ALS: 2 Non ALS: 0	No	X		
018	0990_QC130_240213		13/02/2024 10:52 AM	WATER	ALS: 2 Non ALS: 0	No	X		
019	0990_QC131_240213		13/02/2024 01:11 PM	WATER	ALS: 2 Non ALS: 0	No	X		
020	0990_QC230_240213		13/02/2024 10:52 AM	WATER	ALS: 2 Non ALS: 0	No	X		
021	0990_QC231_240213		13/02/2024 01:11 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 63700 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd
PROJECT: NT_0000_PFASOMP_24
SITE: Private Property Sampling
ORDER NO: 60612361/3.1
PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:
EMAIL REPORTS TO: [redacted]

CONTACT PH:
QUOTE NO: SY/139/19 V3
SAMPLER MOBILE: / ES2019AECOMAU0030

TURNAROUND REQUIREMENTS : 5 Days
Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
023	0990_DC330_240213		14/02/2024 11:51 AM	WATER	ALS: 2 Non ALS: 0	No	X		
023	0990_DC331_240214		14/02/2024 11:51 AM	WATER	ALS: 2 Non ALS: 0	No	X		
024	0990_DC430_240213		14/02/2024 11:52 AM	WATER	ALS: 2 Non ALS: 0	No	X		
025	0990_DC431_240214		14/02/2024 11:52 AM	WATER	ALS: 2 Non ALS: 0	No	X		
026	0990_DC530_240213		14/02/2024 11:53 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 63700 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

EMAIL REPORTS 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	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0990_OTH117_240213	HDPE (no PTFE)	20 mL	00350822015783	Grey	No	
001	0990_OTH117_240213	HDPE (no PTFE)	20 mL	00350822016382	Grey	No	
002	0990_OTH116_240214	HDPE (no PTFE)	20 mL	00352309065455	Grey	No	
002	0990_OTH116_240214	HDPE (no PTFE)	20 mL	00352309065451	Grey	No	
003	0990_OTH119_240212	HDPE (no PTFE)	20 mL	00352309065581	Grey	No	
003	0990_OTH119_240212	HDPE (no PTFE)	20 mL	00352309065536	Grey	No	
004	0990_POT112_240213	HDPE (no PTFE)	20 mL	00350822015843	Grey	No	
004	0990_POT112_240213	HDPE (no PTFE)	20 mL	00350822016158	Grey	No	
005	0990_POT113_240213	HDPE (no PTFE)	20 mL	00351221011476	Grey	No	
005	0990_POT113_240213	HDPE (no PTFE)	20 mL	00351221011717	Grey	No	
006	0990_POT114_240214	HDPE (no PTFE)	20 mL	00350822016328	Grey	No	
006	0990_POT114_240214	HDPE (no PTFE)	20 mL	00350822016644	Grey	No	
007	0990_POT120_240214	HDPE (no PTFE)	20 mL	00352309065617	Grey	No	
007	0990_POT120_240214	HDPE (no PTFE)	20 mL	00352309065622	Grey	No	
008	0990_POT121_240213	HDPE (no PTFE)	20 mL	00350822016489	Grey	No	
008	0990_POT121_240213	HDPE (no PTFE)	20 mL	00350822015822	Grey	No	
009	0990_POT124_240214	HDPE (no PTFE)	20 mL	00351221011681	Grey	No	
009	0990_POT124_240214	HDPE (no PTFE)	20 mL	00351221011733	Grey	No	
010	0990_POT125_240213	HDPE (no PTFE)	20 mL	00350822015758	Grey	No	
010	0990_POT125_240213	HDPE (no PTFE)	20 mL	00350822016640	Grey	No	
011	0990_POT127_240214	HDPE (no PTFE)	20 mL	00350822015839	Grey	No	
011	0990_POT127_240214	HDPE (no PTFE)	20 mL	00350822016582	Grey	No	
012	0990_POT126_240212	HDPE (no PTFE)	20 mL	00350822016538	Grey	No	
012	0990_POT126_240212	HDPE (no PTFE)	20 mL	00350822016002	Grey	No	
013	0990_POT129_240213	HDPE (no PTFE)	20 mL	00350822015763	Grey	No	
013	0990_POT129_240213	HDPE (no PTFE)	20 mL	00350822016066	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 63700 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS 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:

014	0990_POT130_240214	HDPE (no PTFE)	20 mL	00351221009301	Grey	No	
014	0990_POT130_240214	HDPE (no PTFE)	20 mL	00351221009288	Grey	No	
015	0990_POT131_240213	HDPE (no PTFE)	20 mL	00350822016141	Grey	No	
015	0990_POT131_240213	HDPE (no PTFE)	20 mL	00350822016019	Grey	No	
016	0990_POT198_240214	HDPE (no PTFE)	20 mL	00351221011921	Grey	No	
016	0990_POT198_240214	HDPE (no PTFE)	20 mL	00351221011913	Grey	No	
017	0990_POT201_240213	HDPE (no PTFE)	20 mL	00350822016145	Grey	No	
017	0990_POT201_240213	HDPE (no PTFE)	20 mL	00350822016079	Grey	No	
018	0990_DC130_240213	HDPE (no PTFE)	20 mL	00350822016022	Grey	No	
018	0990_DC130_240213	HDPE (no PTFE)	20 mL	00350822015921	Grey	No	
019	0990_DC131_240213	HDPE (no PTFE)	20 mL	00350822016383	Grey	No	
019	0990_DC131_240213	HDPE (no PTFE)	20 mL	00350822016222	Grey	No	
020	0990_DC230_240213	HDPE (no PTFE)	20 mL	00352309065633	Grey	No	
020	0990_DC230_240213	HDPE (no PTFE)	20 mL	00352309065616	Grey	No	
021	0990_DC231_240213	HDPE (no PTFE)	20 mL	00351221011869	Grey	No	
021	0990_DC231_240213	HDPE (no PTFE)	20 mL	00351221011394	Grey	No	
022	0990_DC330_240213	HDPE (no PTFE)	20 mL	00350822015794	Grey	No	
022	0990_DC330_240213	HDPE (no PTFE)	20 mL	00350822016170	Grey	No	
023	0990_DC331_240214	HDPE (no PTFE)	20 mL	00350822016607	Grey	No	
023	0990_DC331_240214	HDPE (no PTFE)	20 mL	00350822016570	Grey	No	
024	0990_DC430_240213	HDPE (no PTFE)	20 mL	00352309065430	Grey	No	
024	0990_DC430_240213	HDPE (no PTFE)	20 mL	00352309065606	Grey	No	
025	0990_DC431_240214	HDPE (no PTFE)	20 mL	00352309065724	Grey	No	
025	0990_DC431_240214	HDPE (no PTFE)	20 mL	00352309065605	Grey	No	
026	0990_DC530_240213	HDPE (no PTFE)	20 mL	00352309065442	Grey	No	
026	0990_DC530_240213	HDPE (no PTFE)	20 mL	00352309065444	Grey	No	

Total Bottle Count: ALS: 52, Non ALS: 0

Lucas RosasNavratil

From: [redacted]
Sent:
To:
Cc:
Subject:

Hi All,

[redacted] has now approved COC 63700 so this should be ready to start scanning these additional bottle.

She did mention that the sample SW016 should be added into the work order ES2404747 for PFAS analysis.

Hopefully that covers everything, but let me know if there are still any issues.

Kind regards,

[redacted]

[redacted]

Hi [redacted]

These arrived with the NT_0990_PFASMGMT_24 batches today [redacted] The batches include ES2404741, ES2404742 and ES2404747.

Also, scratch QC300 and QC400 from that list. Found the labels for those. ☺♪

Kind Regards,

CHAIN OF CUSTODY

62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] 18/1/24 0830

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU0030

EMAIL REPORTS 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:			

30/1

AE(DOK) 240129 / 4

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_OTH118_240116		16/01/2024 09:48 AM	WATER	ALS: 3 Non ALS: 0	No	X		Extra for lab QC
002	0990_OTH119_240115		15/01/2024 01:45 PM	WATER	ALS: 2 Non ALS: 0	No	X		
003	0990_POT112_240115		15/01/2024 01:35 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0990_POT113_240115	Extra volume for lab QC	15/01/2024 01:25 PM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0990_POT120_240116		16/01/2024 10:15 AM	WATER	ALS: 3 Non ALS: 0	No	X		Extra volume for lab QC
006	0990_POT121_240115		15/01/2024 12:55 PM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_POT124_240116		16/01/2024 09:22 AM	WATER	ALS: 2 Non ALS: 0	No	X		

Subcon / Forward Lab Split WO

Lab / Analysis: NM

Organised By / Date:

Relinquished By / Date:

Connote / Courier: QC FUP

WO No: ES2401443

Attach By PO / Internal Sheet:

RECEIVED
19 JAN 2024
16:30

Environmental Division
Sydney
Work Order Reference
ES2401443

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

(ALS) COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

CONTACT PH:
QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:
/ ES2019AECOMAU003 0

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_POT125_240115		15/01/2024 01:51 PM	WATER	ALS: 2 Non ALS: 0	No	X		
009	0990_POT127_240116		16/01/2024 10:02 AM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_POT128_240115		15/01/2024 01:20 PM	WATER	ALS: 2 Non ALS: 0	No	X		
011	0990_POT129_240115		15/01/2024 01:02 PM	WATER	ALS: 2 Non ALS: 0	No	X		
012	0990_POT130_240116		16/01/2024 10:26 AM	WATER	ALS: 2 Non ALS: 0	No	X		
013	0990_POT131_240115		15/01/2024 06:09 PM	WATER	ALS: 2 Non ALS: 0	No	X		
014	0990_POT108_240116		16/01/2024 09:38 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

/ ES2019AECOMAU003 0

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_POT201_240115		15/01/2024 01:59 PM	WATER	ALS: 2 Non ALS: 0	No	X		
016	0990_SW108_240116	Extra volume for lab QC	16/01/2024 11:36 AM	WATER	ALS: 3 Non ALS: 0	No	X		
017	0990_SW153_240116		16/01/2024 11:47 AM	WATER	ALS: 3 Non ALS: 0	No	X		
018	0990_QC100_240115		15/01/2024 01:03 PM	WATER	ALS: 2 Non ALS: 0	No	X		
019	0990_QC101_240116		16/01/2024 09:49 AM	WATER	ALS: 2 Non ALS: 0	No	X		
020	0990_QC102_240116		16/01/2024 10:16 AM	WATER	ALS: 2 Non ALS: 0	No	X		
~~021~~	0990_QC200_240115	Send to NMI please	15/01/2024 01:05 PM	WATER	ALS: 2 Non ALS: 0	No	X		

N24/0012[illegible]

RECEIVED
19 JAN 2024
BY: ...Am...1632...C

CHAIN OF CUSTODY

(ALS) COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 606125673.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
~~022~~	0990_QC201_240116	Send to NMI please N24/001286	16/01/2024 09:50 AM	WATER	ALS: 2 Non ALS: 0	No	X		
~~023~~	0990_QC202_240116	Please forward to NMI N24/001286	16/01/2024 10:16 AM	WATER	ALS: 2 Non ALS: 0	No	X		
024	0990_QC300_240115		15/01/2024 01:07 PM	WATER	ALS: 2 Non ALS: 0	No	X		
025	0990_QC301_240116		16/01/2024 10:04 AM	WATER	ALS: 2 Non ALS: 0	No	X		
026	0990_QC400_240115		15/01/2024 01:08 PM	WATER	ALS: 2 Non ALS: 0	No	X		
027	0990_QC401_240116		16/01/2024 10:05 AM	WATER	ALS: 2 Non ALS: 0	No	X		
028	0990_QC500_240115		15/01/2024 01:03 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER:

CONTACT PH:
QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:
/ ES2019AECOMAU0030

EMAIL REPORTS 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	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
029	0990_OTH008_240116		16/01/2024 01:17 PM	WATER	ALS: 2 Non ALS: 0	No	X		
030	0990_POT235_240116		16/01/2024 12:32 PM	WATER	ALS: 2 Non ALS: 0	No	X		
031	0990_OTH029_240116	Sludge	16/01/2024 12:33 PM	SOLID	ALS: 1 Non ALS: 0	No	X		
032	0990_QC103_240116	Sludge	16/01/2024 01:27 PM	SOLID	ALS: 1 Non ALS: 0	No	X		
~~033~~	0990_QC203_240116	Slude, pls forward to NMI for analysis	16/01/2024 01:28 PM	SOLID	ALS: 1 Non ALS: 0	No	X		

N24/091291

CHAIN OF CUSTODY

ALS COC# 62444 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH:

QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:

ES2019AECOMAU0030

EMAIL REPORTS 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	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0990_OTH118_240116	HDPE (no PTFE)	20 mL	00350822016183	Grey	No	
001	0990_OTH118_240116	HDPE (no PTFE)	20 mL	00350822016491	Grey	No	
001	0990_OTH118_240116	HDPE (no PTFE)	20 mL	00350219006387	Grey	No	
002	0990_OTH119_240115	HDPE (no PTFE)	20 mL	00350822016553	Grey	No	
002	0990_OTH119_240115	HDPE (no PTFE)	20 mL	00350822015819	Grey	No	
003	0990_POT112_240115	HDPE (no PTFE)	20 mL	00350822016068	Grey	No	
003	0990_POT112_240115	HDPE (no PTFE)	20 mL	00350822016235	Grey	No	
004	0990_POT113_240115	HDPE (no PTFE)	20 mL	00350822016441	Grey	No	
004	0990_POT113_240115	HDPE (no PTFE)	20 mL	00350822016336	Grey	No	
004	0990_POT113_240115	HDPE (no PTFE)	20 mL	00351219036805	Grey	No	
005	0990_POT120_240116	HDPE (no PTFE)	20 mL	00350822016292	Grey	No	
005	0990_POT120_240116	HDPE (no PTFE)	20 mL	00350822016433	Grey	No	
005	0990_POT120_240116	HDPE (no PTFE)	20 mL	00350219006469	Grey	No	
006	0990_POT121_240115	HDPE (no PTFE)	20 mL	00350822016230	Grey	No	
006	0990_POT121_240115	HDPE (no PTFE)	20 mL	00350822016271	Grey	No	
007	0990_POT124_240116	HDPE (no PTFE)	20 mL	00350822016317	Grey	No	
007	0990_POT124_240116	HDPE (no PTFE)	20 mL	00350822016241	Grey	No	
008	0990_POT125_240115	HDPE (no PTFE)	20 mL	00350822016429	Grey	No	
008	0990_POT125_240115	HDPE (no PTFE)	20 mL	00350822016268	Grey	No	
009	0990_POT127_240116	HDPE (no PTFE)	20 mL	00350822016056	Grey	No	
009	0990_POT127_240116	HDPE (no PTFE)	20 mL	00350822016417	Grey	No	
010	0990_POT128_240115	HDPE (no PTFE)	20 mL	00350822016249	Grey	No	
010	0990_POT128_240115	HDPE (no PTFE)	20 mL	00350822016450	Grey	No	
011	0990_POT129_240115	HDPE (no PTFE)	20 mL	00350822016123	Grey	No	
011	0990_POT129_240115	HDPE (no PTFE)	20 mL	00350822016410	Grey	No	
012	0990_POT130_240116	HDPE (no PTFE)	20 mL	00350822016294	Grey	No	

CHAIN OF CUSTODY

COC#: 62444 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 506125617/3.1

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: SAMPLER MOBILE:

QUOTE NO: SY/139/19 V3 / ES2019AECOMAU0030

EMAIL REPORTS TO: [redacted]

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:

012	0990_POT130_240116	HDPE (no PTFE)	20 mL	00350822016431	Grey	No	
013	0990_POT131_240115	HDPE (no PTFE)	20 mL	00350822016299	Grey	No	
~~013~~	~~0990_POT131_240115~~	~~HDPE (no PTFE)~~	~~20 mL~~	~~00350822016315~~	~~Grey~~	~~No~~	~~DUPLICATE~~
014	0990_POT198_240116	HDPE (no PTFE)	20 mL	00350822016265	Grey	No	
014	0990_POT198_240116	HDPE (no PTFE)	20 mL	00350822016226	Grey	No	DUPLICATE
015	0990_POT201_240115	HDPE (no PTFE)	20 mL	00350822016302	Grey	No	
015	0990_POT201_240115	HDPE (no PTFE)	20 mL	00350822016390	Grey	No	DUPLICATE
016	0990_SW108_240116	HDPE (no PTFE)	20 mL	00350219006479	Grey	No	
016	0990_SW108_240116	HDPE (no PTFE)	20 mL	00350822016144	Grey	No	DUPLICATE
016	0990_SW108_240116	HDPE (no PTFE)	20 mL	00350822016293	Grey	No	
017	0990_SW153_240116	HDPE (no PTFE)	20 mL	00350822016467	Grey	No	
017	0990_SW153_240116	HDPE (no PTFE)	20 mL	00350822016594	Grey	No	DUPLICATE
017	0990_SW153_240116	HDPE (no PTFE)	20 mL	00350219006510	Grey	No	
018	0990_QC100_240115	HDPE (no PTFE)	20 mL	00350822016468	Grey	No	
018	0990_QC100_240115	HDPE (no PTFE)	20 mL	00350822016531	Grey	No	DUPLICATE
019	0990_QC101_240116	HDPE (no PTFE)	20 mL	00350822016455	Grey	No	
019	0990_QC101_240116	HDPE (no PTFE)	20 mL	00350822015884	Grey	No	DUPLICATE
020	0990_QC102_240116	HDPE (no PTFE)	20 mL	00350822015982	Grey	No	
020	0990_QC102_240116	HDPE (no PTFE)	20 mL	00350822016197	Grey	No	DUPLICATE
021	0990_QC200_240115	HDPE (no PTFE)	20 mL	00350822016368	Grey	No	
021	0990_QC200_240115	HDPE (no PTFE)	20 mL	00350822016305	Grey	No	DUPLICATE
022	0990_QC201_240116	HDPE (no PTFE)	20 mL	00350822016501	Grey	No	
022	0990_QC201_240116	HDPE (no PTFE)	20 mL	00350822016456	Grey	No	DUPLICATE
023	0990_QC202_240116	HDPE (no PTFE)	20 mL	00350822016193	Grey	No	
023	0990_QC202_240116	HDPE (no PTFE)	20 mL	00350822016613	Grey	No	DUPLICATE
024	0990_QC300_240115	HDPE (no PTFE)	20 mL	00350822016641	Grey	No	
024	0990_QC300_240115	HDPE (no PTFE)	20 mL	00350822016563	Grey	No	DUPLICATE

CHAIN OF CUSTODY

COC#: 62444 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME: 18/1/24 0930

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

PROJECT MANAGER: [redacted]
PRIMARY SAMPLER: [redacted]

CONTACT PH:
QUOTE NO: SY/139/19 V3

SAMPLER MOBILE:
/ ES2019AECOMAU0030

EMAIL REPORTS 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:

025	0990_QC301_240116	HDPE (no PTFE)	20 mL	00350822016592	Grey	No	
025	0990_QC301_240116	HDPE (no PTFE)	20 mL	00350822016134	Grey	No	
026	0990_QC400_240115	HDPE (no PTFE)	20 mL	00350822015981	Grey	No	
026	0990_QC400_240115	HDPE (no PTFE)	20 mL	00350822016354	Grey	No	
027	0990_QC401_240116	HDPE (no PTFE)	20 mL	00350822016458	Grey	No	
027	0990_QC401_240116	HDPE (no PTFE)	20 mL	00350822016351	Grey	No	
028	0990_QC500_240115	HDPE (no PTFE)	20 mL	00352309042669	Grey	No	
028	0990_QC500_240115	HDPE (no PTFE)	20 mL	00352309042477	Grey	No	
029	0990_OTH008_240116	HDPE (no PTFE)	20 mL	00350822015985	Grey	No	
029	0990_OTH006_240116	HDPE (no PTFE)	20 mL	00350822015972	Grey	No	
030	0990_POT235_240116	HDPE (no PTFE)	20 mL	00350822015807	Grey	No	
030	0990_POT235_240116	HDPE (no PTFE)	20 mL	00350822016349	Grey	No	
031	0990_OTH129_240116	HDPE Soil Jar	200 mL	00621122008745	Grey	No	
032	0990_QC103_240116	HDPE Soil Jar	200 mL	00621122008734	Grey	No	
033	0990_QC203_240116	HDPE Soil Jar	200 mL	00621122008826	Grey	No	

Total Bottle Count: ALS: 68, Non ALS: 0

Appendix F

Laboratory Reports

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2339515**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 16-Nov-2023
Site	: ----	Issue Date	: 22-Nov-2023
Sampler	: [redacted]	No. of samples received	: 10
Order number	: 60612561/3.1	No. of samples analysed	: 10

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)								
0990_SW016_231113,	0990_SW049_231113,	**13-Nov-2023**	**21-Nov-2023**	11-May-2024	✓	**22-Nov-2023**	11-May-2024	✓
0990_SW140_231113,	0990_SW188_231113,							
0990_SW350_231113,	0990_SW0213_231113,							
0990_QC100_231113,	0990_QC300_231113,							
0990_QC400_231113,	0990_QC500_231113							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0990_SW016_231113,	0990_SW049_231113,	**13-Nov-2023**	**21-Nov-2023**	11-May-2024	✓	**22-Nov-2023**	11-May-2024	✓
0990_SW140_231113,	0990_SW188_231113,							
0990_SW350_231113,	0990_SW0213_231113,							
0990_QC100_231113,	0990_QC300_231113,							
0990_QC400_231113,	0990_QC500_231113							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0990_SW016_231113,	0990_SW049_231113,	**13-Nov-2023**	**21-Nov-2023**	11-May-2024	✓	**22-Nov-2023**	11-May-2024	✓
0990_SW140_231113,	0990_SW188_231113,							
0990_SW350_231113,	0990_SW0213_231113,							
0990_QC100_231113,	0990_QC300_231113,							
0990_QC400_231113,	0990_QC500_231113							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0990_SW016_231113,	0990_SW049_231113,	**13-Nov-2023**	**21-Nov-2023**	11-May-2024	✓	**22-Nov-2023**	11-May-2024	✓
0990_SW140_231113,	0990_SW188_231113,							
0990_SW350_231113,	0990_SW0213_231113,							
0990_QC100_231113,	0990_QC300_231113,							
0990_QC400_231113,	0990_QC500_231113							

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)							
0990_SW016_231113, 0990_SW049_231113, 0990_SW140_231113, 0990_SW188_231113, 0990_SW350_231113, 0990_SW0213_231113, 0990_QC100_231113, 0990_QC300_231113, 0990_QC400_231113, 0990_QC500_231113	**13-Nov-2023**	**21-Nov-2023**	11-May-2024	✓	**22-Nov-2023**	11-May-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
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	: **ES2339515**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASOMP_23	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 16-Nov-2023 08:30	Issue Date	: 16-Nov-2023
Client Requested Due Date	: 22-Nov-2023	Scheduled Reporting Date	: **22-Nov-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 14.0'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

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.**
- **QC forward analysis will be conducted by NMI.**
- 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)
ES2339515-001	13-Nov-2023 00:00	0990_SW016_231113	✓
ES2339515-002	13-Nov-2023 00:00	0990_SW049_231113	✓
ES2339515-003	13-Nov-2023 00:00	0990_SW140_231113	✓
ES2339515-004	13-Nov-2023 00:00	0990_SW188_231113	✓
ES2339515-005	13-Nov-2023 00:00	0990_SW350_231113	✓
ES2339515-006	13-Nov-2023 00:00	0990_SW0213_231113	✓
ES2339515-007	13-Nov-2023 00:00	0990_QC100_231113	✓
ES2339515-008	13-Nov-2023 00:00	0990_QC300_231113	✓
ES2339515-009	13-Nov-2023 00:00	0990_QC400_231113	✓
ES2339515-010	13-Nov-2023 00:00	0990_QC500_231113	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

CERTIFICATE OF ANALYSIS

Work Order	: **ES2339515**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 16-Nov-2023 08:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 16-Nov-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023 13:26
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 10		
No. of samples analysed	: 10		

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]	[redacted]	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)				Sample ID	0990_SW016_231113	0990_SW049_231113	0990_SW140_231113	0990_SW188_231113	0990_SW350_231113
				Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2339515-001	ES2339515-002	ES2339515-003	ES2339515-004	ES2339515-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.16**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.13**	**0.07**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.05**	**0.74**	**0.43**	**0.03**	**0.03**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	**0.06**	**0.10**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.24**	**2.66**	**3.67**	**0.38**	**0.05**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	**0.03**	**0.04**	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	**0.1**	**0.3**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.18**	**0.46**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.02**	**0.38**	**0.81**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.05**	**0.54**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.10**	**0.70**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	**0.39**	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	**0.57**	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	**0.32**	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	**0.09**	<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	**0.03**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW016_231113	0990_SW049_231113	0990_SW140_231113	0990_SW188_231113	0990_SW350_231113
				Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2339515-001	ES2339515-002	ES2339515-003	ES2339515-004	ES2339515-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.11**	**0.11**	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	**2.81**	<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		**0.31**	**4.70**	**11.4**	**0.41**	**0.08**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.29**	**3.40**	**4.10**	**0.41**	**0.08**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.31**	**4.48**	**9.83**	**0.41**	**0.08**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**100.0**	**92.5**	**108**	**99.7**	**100**
13C8-PFOA	----	0.02	%		**94.4**	**101**	**110**	**100**	**100**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW0213_231113	0990_QC100_231113	0990_QC300_231113	0990_QC400_231113	0990_QC500_231113
				Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2339515-006	ES2339515-007	ES2339515-008	ES2339515-009	ES2339515-010
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.15**	**0.05**	<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		**1.25**	**0.24**	<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		**0.16**	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.29**	**0.02**	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.19**	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.24**	<0.01	<0.01	<0.01	<0.01
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		**0.21**	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		**0.12**	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		**0.04**	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW0213_231113	0990_QC100_231113	0990_QC300_231113	0990_QC400_231113	0990_QC500_231113
				Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		ES2339515-006	ES2339515-007	ES2339515-008	ES2339515-009	ES2339515-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**1.04**	<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		**3.97**	**0.31**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.40**	**0.29**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**3.42**	**0.31**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.3**	**98.4**	**99.6**	**112**	**99.4**
13C8-PFOA	----	0.02	%		**97.2**	**103**	**95.6**	**90.0**	**97.1**

Surrogate Control Limits

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

QUALITY CONTROL REPORT

Work Order	: **ES2339515**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 16-Nov-2023
Order number	: 60612561/3.1	Date Analysis Commenced	: 16-Nov-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 10		
No. of samples analysed	: 10		

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]		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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5434082)									
ES2339515-001	0990_SW016_231113	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	0.24	0.25	0.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2339319-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	0.16	0.12	35.1	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02 (0.05)*	µg/L	17.0	18.2	7.3	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02 (0.05)*	µg/L	<0.05	0.10	71.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5434082)									
ES2339515-001	0990_SW016_231113	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

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: 5434082) - continued									
ES2339515-001	0990_SW016_231113	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
ES2339319-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01 (0.05)*	µg/L	0.12	0.13	12.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02 (0.05)*	µg/L	3.17	3.38	6.4	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02 (0.05)*	µg/L	6.94	7.20	3.8	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02 (0.05)*	µg/L	0.41	0.41	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05 (0.12)*	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1 (0.2)*	µg/L	1.4	1.4	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5434082)									
ES2339515-001	0990_SW016_231113	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
ES2339319-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02 (0.05)*	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05 (0.12)*	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05 (0.12)*	µg/L	<0.12	<0.12	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05 (0.12)*	µg/L	<0.12	<0.12	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: 5434082) - continued									
ES2339319-002	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05 (0.12)*	µg/L	<0.12	<0.12	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5434082)									
ES2339515-001	0990_SW016_231113	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
ES2339319-002	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: 5434082)									
ES2339515-001	0990_SW016_231113	EP231X: Sum of PFAS	----	0.01	µg/L	0.31	0.32	3.2	0% - 20%
ES2339319-002	Anonymous	EP231X: Sum of PFAS	----	0.01 (0.05)*	µg/L	29.2	30.9	5.8	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: 5434082)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	95.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	112	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	104	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	111	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	109	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5434082)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	104	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	112	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	113	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	110	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	108	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	116	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	115	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5434082)								
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	114	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	122	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	121	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	112	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	101	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5434082)								

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: 5434082) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	97.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	119	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	122	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	94.6	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

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: 5434082)							
ES2339515-001	0990_SW016_231113	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	99.5	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	107	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	96.5	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	117	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	125	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	109	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5434082)							
ES2339515-001	0990_SW016_231113	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	101	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	103	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	112	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	122	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	110	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	116	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	105	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	107	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	99.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	115	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5434082)							
ES2339515-001	0990_SW016_231113	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	106	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	107	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	95.0	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	102	66.0	145

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: 5434082) - continued							
ES2339515-001	0990_SW016_231113	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	116	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	105	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	99.3	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5434082)							
ES2339515-001	0990_SW016_231113	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	104	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	126	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	76.9	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2340047**	Page	: 1 of 8
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 22-Nov-2023
Site	: Tindal - Private Property	Issue Date	: 27-Nov-2023
Sampler	: [redacted]	No. of samples received	: 35
Order number	: 60612561/3.1	No. of samples analysed	: 35

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
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	35	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	35	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)								
0990_POT112_231113,	0990_POT128_231113,	**13-Nov-2023**	**24-Nov-2023**	11-May-2024	✓	**27-Nov-2023**	11-May-2024	✓
0990_POT113_231113,	0990_POT129_231113,							
0990_OTH119_231113,	0990_POT126_231113,							
0990_POT131_231113,	0990_POT124_231113,							
0990_POT125_231113,	0990_POT120_231113,							
0990_POT114_231113,	0990_OTH118_231113,							
0990_POT127_231113,	0990_POT224_231113,							
0990_QC100_231113,	0990_QC101_231113							
HDPE (no PTFE) (EP231X)								
0990_OTH117_231114,	0990_POT130_231114,	**14-Nov-2023**	**24-Nov-2023**	12-May-2024	✓	**27-Nov-2023**	12-May-2024	✓
0990_POT121_231114,	0990_POT201_231114,							
0990_POT198_231114,	0990_POT225_231114,							
0990_POT226_231114,	0990_POT227_231114,							
0990_QC102_231114,	0990_QC300_231113,							
0990_QC301_231114,	0990_QC400_231113,							
0990_QC401_231114,	0990_QC500_231113							
HDPE (no PTFE) (EP231X)								
0990_POT228_231115,	0990_POT229_231115,	**15-Nov-2023**	**24-Nov-2023**	13-May-2024	✓	**27-Nov-2023**	13-May-2024	✓
0990_POT230_231115,	0990_QC302_231115,							
0990_QC402_231115								

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)							
0990_POT112_231113, 0990_POT128_231113, 0990_POT113_231113, 0990_POT129_231113, 0990_OTH119_231113, 0990_POT126_231113, 0990_POT131_231113, 0990_POT124_231113, 0990_POT125_231113, 0990_POT120_231113, 0990_POT114_231113, 0990_OTH118_231113, 0990_POT127_231113, 0990_POT224_231113, 0990_QC100_231113, 0990_QC101_231113	**13-Nov-2023**	**24-Nov-2023**	11-May-2024	✓	**27-Nov-2023**	11-May-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH117_231114, 0990_POT130_231114, 0990_POT121_231114, 0990_POT201_231114, 0990_POT198_231114, 0990_POT225_231114, 0990_POT226_231114, 0990_POT227_231114, 0990_QC102_231114, 0990_QC300_231113, 0990_QC301_231114, 0990_QC400_231113, 0990_QC401_231114, 0990_QC500_231113	**14-Nov-2023**	**24-Nov-2023**	12-May-2024	✓	**27-Nov-2023**	12-May-2024	✓
HDPE (no PTFE) (EP231X)							
0990_POT228_231115, 0990_POT229_231115, 0990_POT230_231115, 0990_QC302_231115, 0990_QC402_231115	**15-Nov-2023**	**24-Nov-2023**	13-May-2024	✓	**27-Nov-2023**	13-May-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0990_POT112_231113, 0990_POT128_231113, 0990_POT113_231113, 0990_POT129_231113, 0990_OTH119_231113, 0990_POT126_231113, 0990_POT131_231113, 0990_POT124_231113, 0990_POT125_231113, 0990_POT120_231113, 0990_POT114_231113, 0990_OTH118_231113, 0990_POT127_231113, 0990_POT224_231113, 0990_QC100_231113, 0990_QC101_231113	**13-Nov-2023**	**24-Nov-2023**	11-May-2024	✓	**27-Nov-2023**	11-May-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH117_231114, 0990_POT130_231114, 0990_POT121_231114, 0990_POT201_231114, 0990_POT198_231114, 0990_POT225_231114, 0990_POT226_231114, 0990_POT227_231114, 0990_QC102_231114, 0990_QC300_231113, 0990_QC301_231114, 0990_QC400_231113, 0990_QC401_231114, 0990_QC500_231113	**14-Nov-2023**	**24-Nov-2023**	12-May-2024	✓	**27-Nov-2023**	12-May-2024	✓
HDPE (no PTFE) (EP231X)							
0990_POT228_231115, 0990_POT229_231115, 0990_POT230_231115, 0990_QC302_231115, 0990_QC402_231115	**15-Nov-2023**	**24-Nov-2023**	13-May-2024	✓	**27-Nov-2023**	13-May-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0990_POT112_231113, 0990_POT128_231113, 0990_POT113_231113, 0990_POT129_231113, 0990_OTH119_231113, 0990_POT126_231113, 0990_POT131_231113, 0990_POT124_231113, 0990_POT125_231113, 0990_POT120_231113, 0990_POT114_231113, 0990_OTH118_231113, 0990_POT127_231113, 0990_POT224_231113, 0990_QC100_231113, 0990_QC101_231113	**13-Nov-2023**	**24-Nov-2023**	11-May-2024	✓	**27-Nov-2023**	11-May-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH117_231114, 0990_POT130_231114, 0990_POT121_231114, 0990_POT201_231114, 0990_POT198_231114, 0990_POT225_231114, 0990_POT226_231114, 0990_POT227_231114, 0990_QC102_231114, 0990_QC300_231113, 0990_QC301_231114, 0990_QC400_231113, 0990_QC401_231114, 0990_QC500_231113	**14-Nov-2023**	**24-Nov-2023**	12-May-2024	✓	**27-Nov-2023**	12-May-2024	✓
HDPE (no PTFE) (EP231X)							
0990_POT228_231115, 0990_POT229_231115, 0990_POT230_231115, 0990_QC302_231115, 0990_QC402_231115	**15-Nov-2023**	**24-Nov-2023**	13-May-2024	✓	**27-Nov-2023**	13-May-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0990_POT112_231113, 0990_POT128_231113, 0990_POT113_231113, 0990_POT129_231113, 0990_OTH119_231113, 0990_POT126_231113, 0990_POT131_231113, 0990_POT124_231113, 0990_POT125_231113, 0990_POT120_231113, 0990_POT114_231113, 0990_OTH118_231113, 0990_POT127_231113, 0990_POT224_231113, 0990_QC100_231113, 0990_QC101_231113	**13-Nov-2023**	**24-Nov-2023**	11-May-2024	✓	**27-Nov-2023**	11-May-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH117_231114, 0990_POT130_231114, 0990_POT121_231114, 0990_POT201_231114, 0990_POT198_231114, 0990_POT225_231114, 0990_POT226_231114, 0990_POT227_231114, 0990_QC102_231114, 0990_QC300_231113, 0990_QC301_231114, 0990_QC400_231113, 0990_QC401_231114, 0990_QC500_231113	**14-Nov-2023**	**24-Nov-2023**	12-May-2024	✓	**27-Nov-2023**	12-May-2024	✓
HDPE (no PTFE) (EP231X)							
0990_POT228_231115, 0990_POT229_231115, 0990_POT230_231115, 0990_QC302_231115, 0990_QC402_231115	**15-Nov-2023**	**24-Nov-2023**	13-May-2024	✓	**27-Nov-2023**	13-May-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	35	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	35	**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.

QUALITY CONTROL REPORT

Work Order	: **ES2340047**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 22-Nov-2023
Order number	: 60612561/3.1	Date Analysis Commenced	: 22-Nov-2023
C-O-C number	: 59911	Issue Date	: 27-Nov-2023
Sampler	: [redacted]		
Site	: Tindal - Private Property		
Quote number	: SY/139/19 V3		
No. of samples received	: 35		
No. of samples analysed	: 35		

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]		Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

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

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5442221)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	84.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	77.9	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	95.5	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	91.7	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	83.2	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5442226)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	84.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	97.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	91.3	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	92.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	86.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5442221)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	82.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	92.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	92.9	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	87.8	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.9	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	84.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	88.7	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	84.9	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	81.4	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5442226)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	88.1	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.7	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.7	72.0	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: 5442226) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	100	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.9	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	94.3	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	86.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	90.1	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	87.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5442221)								
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	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.2	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	87.3	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	87.7	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	87.5	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	72.5	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5442226)								
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	104	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	93.2	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	99.4	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	91.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5442221)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	83.5	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	77.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	84.5	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	106	71.4	144

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: 5442226)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	86.3	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	101	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	80.6	71.4	144

Matrix Spike (MS) Report

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

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2340047**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASOMP_23	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: 59911	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Tindal - Private Property		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Nov-2023 08:30	Issue Date	: 22-Nov-2023
Client Requested Due Date	: 29-Nov-2023	Scheduled Reporting Date	: **29-Nov-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 12.3'C 13.5'C 13.8'C SYD - Ice present
Receipt Detail	:	No. of samples received / analysed	: 35 / 35

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.**
- **QC Forward analysis will be conducted by NMI.**
- 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)
ES2340047-001	13-Nov-2023 10:55	0990_POT112_231113	✓
ES2340047-002	13-Nov-2023 10:58	0990_POT128_231113	✓
ES2340047-003	13-Nov-2023 11:06	0990_POT113_231113	✓
ES2340047-004	13-Nov-2023 11:22	0990_POT129_231113	✓
ES2340047-005	13-Nov-2023 11:38	0990_OTH119_231113	✓
ES2340047-006	13-Nov-2023 14:52	0990_POT126_231113	✓
ES2340047-007	13-Nov-2023 16:38	0990_POT131_231113	✓
ES2340047-008	14-Nov-2023 11:35	0990_OTH117_231114	✓
ES2340047-009	14-Nov-2023 08:24	0990_POT130_231114	✓
ES2340047-010	14-Nov-2023 08:25	0990_POT121_231114	✓
ES2340047-011	14-Nov-2023 09:26	0990_POT201_231114	✓
ES2340047-012	14-Nov-2023 09:38	0990_POT198_231114	✓
ES2340047-013	13-Nov-2023 14:05	0990_POT124_231113	✓
ES2340047-014	13-Nov-2023 13:54	0990_POT125_231113	✓
ES2340047-015	13-Nov-2023 13:07	0990_POT120_231113	✓
ES2340047-016	13-Nov-2023 14:16	0990_POT114_231113	✓
ES2340047-017	13-Nov-2023 13:19	0990_OTH118_231113	✓
ES2340047-018	13-Nov-2023 13:21	0990_POT127_231113	✓
ES2340047-019	13-Nov-2023 08:08	0990_POT224_231113	✓
ES2340047-020	14-Nov-2023 12:08	0990_POT225_231114	✓
ES2340047-021	14-Nov-2023 12:09	0990_POT226_231114	✓
ES2340047-022	14-Nov-2023 12:09	0990_POT227_231114	✓
ES2340047-023	15-Nov-2023 17:03	0990_POT228_231115	✓
ES2340047-024	13-Nov-2023 11:07	0990_QC100_231113	✓
ES2340047-025	13-Nov-2023 14:53	0990_QC101_231113	✓
ES2340047-026	14-Nov-2023 09:39	0990_QC102_231114	✓
ES2340047-030	14-Nov-2023 20:38	0990_QC300_231113	✓
ES2340047-031	14-Nov-2023 20:38	0990_QC301_231114	✓
ES2340047-032	14-Nov-2023 20:38	0990_QC400_231113	✓
ES2340047-033	14-Nov-2023 20:38	0990_QC401_231114	✓
ES2340047-034	14-Nov-2023 20:38	0990_QC500_231113	✓
ES2340047-035	15-Nov-2023 17:04	0990_POT229_231115	✓
ES2340047-036	15-Nov-2023 17:05	0990_POT230_231115	✓
ES2340047-037	15-Nov-2023 17:07	0990_QC302_231115	✓
ES2340047-038	15-Nov-2023 17:07	0990_QC402_231115	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

CERTIFICATE OF ANALYSIS

Work Order	: **ES2340047**	Page	: 1 of 17
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 22-Nov-2023 08:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 22-Nov-2023
C-O-C number	: 59911	Issue Date	: 27-Nov-2023 15:33
Sampler	: [redacted]		
Site	: Tindal - Private Property		
Quote number	: SY/139/19 V3		
No. of samples received	: 35		
No. of samples analysed	: 35		

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]		Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Results for sample #24 confirmed by re-extraction and re-analysis.
- 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	0990_POT112_231113	0990_POT128_231113	0990_POT113_231113	0990_POT129_231113	0990_OTH119_231113
				Sampling date / time	13-Nov-2023 10:55	13-Nov-2023 10:58	13-Nov-2023 11:06	13-Nov-2023 11:22	13-Nov-2023 11:38
					ES2340047-001	ES2340047-002	ES2340047-003	ES2340047-004	ES2340047-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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	**0.02**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT112_231113	0990_POT128_231113	0990_POT113_231113	0990_POT129_231113	0990_OTH119_231113
				Sampling date / time	13-Nov-2023 10:55	13-Nov-2023 10:58	13-Nov-2023 11:06	13-Nov-2023 11:22	13-Nov-2023 11:38
Compound	CAS Number	LOR	Unit		ES2340047-001	ES2340047-002	ES2340047-003	ES2340047-004	ES2340047-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.02**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	<0.01	**0.02**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	<0.01	**0.02**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**107**	**108**	**105**	**118**
13C8-PFOA	----	0.02	%		**108**	**98.1**	**105**	**107**	**105**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT126_231113	0990_POT131_231113	0990_OTH117_231114	0990_POT130_231114	0990_POT121_231114
				Sampling date / time	13-Nov-2023 14:52	13-Nov-2023 16:38	14-Nov-2023 11:35	14-Nov-2023 08:24	14-Nov-2023 08:25
					ES2340047-006	ES2340047-007	ES2340047-008	ES2340047-009	ES2340047-010
					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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT126_231113	0990_POT131_231113	0990_OTH117_231114	0990_POT130_231114	0990_POT121_231114
				Sampling date / time	13-Nov-2023 14:52	13-Nov-2023 16:38	14-Nov-2023 11:35	14-Nov-2023 08:24	14-Nov-2023 08:25
Compound	CAS Number	LOR	Unit		ES2340047-006	ES2340047-007	ES2340047-008	ES2340047-009	ES2340047-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	%		**107**	**109**	**102**	**101**	**106**
13C8-PFOA	----	0.02	%		**107**	**99.5**	**107**	**103**	**106**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT201_231114	0990_POT198_231114	0990_POT124_231113	0990_POT125_231113	0990_POT120_231113
				Sampling date / time	14-Nov-2023 09:26	14-Nov-2023 09:38	13-Nov-2023 14:05	13-Nov-2023 13:54	13-Nov-2023 13:07
					ES2340047-011	ES2340047-012	ES2340047-013	ES2340047-014	ES2340047-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.03**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT201_231114	0990_POT198_231114	0990_POT124_231113	0990_POT125_231113	0990_POT120_231113
				Sampling date / time	14-Nov-2023 09:26	14-Nov-2023 09:38	13-Nov-2023 14:05	13-Nov-2023 13:54	13-Nov-2023 13:07
Compound	CAS Number	LOR	Unit		ES2340047-011	ES2340047-012	ES2340047-013	ES2340047-014	ES2340047-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.05**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.05**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.05**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	**115**	**104**	**117**	**116**
13C8-PFOA	----	0.02	%		**101**	**102**	**103**	**103**	**101**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT114_231113	0990_OTH118_231113	0990_POT127_231113	0990_POT224_231113	0990_POT225_231114
				Sampling date / time	13-Nov-2023 14:16	13-Nov-2023 13:19	13-Nov-2023 13:21	13-Nov-2023 08:08	14-Nov-2023 12:08
					ES2340047-016	ES2340047-017	ES2340047-018	ES2340047-019	ES2340047-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT114_231113	0990_OTH118_231113	0990_POT127_231113	0990_POT224_231113	0990_POT225_231114
				Sampling date / time	13-Nov-2023 14:16	13-Nov-2023 13:19	13-Nov-2023 13:21	13-Nov-2023 08:08	14-Nov-2023 12:08
Compound	CAS Number	LOR	Unit		ES2340047-016	ES2340047-017	ES2340047-018	ES2340047-019	ES2340047-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	%		**106**	**109**	**104**	**91.0**	**103**
13C8-PFOA	----	0.02	%		**103**	**108**	**99.9**	**101**	**102**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT226_231114	0990_POT227_231114	0990_POT228_231115	0990_QC100_231113	0990_QC101_231113
				Sampling date / time	14-Nov-2023 12:09	14-Nov-2023 12:09	15-Nov-2023 17:03	13-Nov-2023 11:07	13-Nov-2023 14:53
					ES2340047-021	ES2340047-022	ES2340047-023	ES2340047-024	ES2340047-025
					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	**0.02**	<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	**0.02**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT226_231114	0990_POT227_231114	0990_POT228_231115	0990_QC100_231113	0990_QC101_231113
				Sampling date / time	14-Nov-2023 12:09	14-Nov-2023 12:09	15-Nov-2023 17:03	13-Nov-2023 11:07	13-Nov-2023 14:53
Compound	CAS Number	LOR	Unit		ES2340047-021	ES2340047-022	ES2340047-023	ES2340047-024	ES2340047-025
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.04**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	**0.04**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	**0.04**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**103**	**97.5**	**93.1**	**94.1**	**97.9**
13C8-PFOA	----	0.02	%		**106**	**104**	**104**	**111**	**106**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC102_231114	0990_QC300_231113	0990_QC301_231114	0990_QC400_231113	0990_QC401_231114
				Sampling date / time	14-Nov-2023 09:39	14-Nov-2023 20:38	14-Nov-2023 20:38	14-Nov-2023 20:38	14-Nov-2023 20:38
Compound	CAS Number	LOR	Unit		ES2340047-026	ES2340047-030	ES2340047-031	ES2340047-032	ES2340047-033
					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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC102_231114	0990_QC300_231113	0990_QC301_231114	0990_QC400_231113	0990_QC401_231114
				Sampling date / time	14-Nov-2023 09:39	14-Nov-2023 20:38	14-Nov-2023 20:38	14-Nov-2023 20:38	14-Nov-2023 20:38
Compound	CAS Number	LOR	Unit		ES2340047-026	ES2340047-030	ES2340047-031	ES2340047-032	ES2340047-033
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	%		**104**	**95.1**	**95.9**	**106**	**99.7**
13C8-PFOA	----	0.02	%		**105**	**106**	**101**	**107**	**100**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC500_231113	0990_POT229_231115	0990_POT230_231115	0990_QC302_231115	0990_QC402_231115
				Sampling date / time	14-Nov-2023 20:38	15-Nov-2023 17:04	15-Nov-2023 17:05	15-Nov-2023 17:07	15-Nov-2023 17:07
Compound	CAS Number	LOR	Unit		ES2340047-034	ES2340047-035	ES2340047-036	ES2340047-037	ES2340047-038
					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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC500_231113	0990_POT229_231115	0990_POT230_231115	0990_QC302_231115	0990_QC402_231115
				Sampling date / time	14-Nov-2023 20:38	15-Nov-2023 17:04	15-Nov-2023 17:05	15-Nov-2023 17:07	15-Nov-2023 17:07
Compound	CAS Number	LOR	Unit		ES2340047-034	ES2340047-035	ES2340047-036	ES2340047-037	ES2340047-038
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	%		**96.4**	**97.3**	**103**	**102**	**104**
13C8-PFOA	----	0.02	%		**100**	**98.5**	**104**	**102**	**98.1**

Surrogate Control Limits

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

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2343442**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 19-Dec-2023
Site	: Tindal Private Property Sampling	Issue Date	: 02-Jan-2024
Sampler	: [redacted]	No. of samples received	: 28
Order number	: 60612561/3.1	No. of samples analysed	: 28

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
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	37	2.70	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	37	2.70	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) 0990_POT231_231212, 0990_POT232_231212, 0990_POT201_231212, 0990_POT198_231212, 0990_POT125_231212, 0990_OTH118_231212, 0990_POT127_231212, 0990_POT121_231212	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**21-Dec-2023**	09-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT124_231212, 0990_POT114_231212, 0990_POT131_231212, 0990_POT120_231212, 0990_QC100_231212, 0990_QC300_231212, 0990_QC400_231212, 0990_QC500_231212, 0990_QC101_231212	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**22-Dec-2023**	09-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_231213, 0990_POT130_231213	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**21-Dec-2023**	10-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT112_231213, 0990_POT113_231213, 0990_POT128_231213, 0990_POT129_231213, 0990_OTH119_231213, 0990_POT234_231213, 0990_QC102_231213, 0990_QC301_231213, 0990_QC401_231213	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**22-Dec-2023**	10-Jun-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0990_POT231_231212,	0990_POT232_231212,	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**21-Dec-2023**	09-Jun-2024	✓
0990_POT201_231212,	0990_POT198_231212,							
0990_POT125_231212,	0990_OTH118_231212,							
0990_POT127_231212,	0990_POT121_231212							
HDPE (no PTFE) (EP231X)								
0990_POT124_231212,	0990_POT114_231212,	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**22-Dec-2023**	09-Jun-2024	✓
0990_POT131_231212,	0990_POT120_231212,							
0990_QC100_231212,	0990_QC300_231212,							
0990_QC400_231212,	0990_QC500_231212,							
0990_QC101_231212								
HDPE (no PTFE) (EP231X)								
0990_OTH117_231213,	0990_POT130_231213	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**21-Dec-2023**	10-Jun-2024	✓
HDPE (no PTFE) (EP231X)								
0990_POT112_231213,	0990_POT113_231213,	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**22-Dec-2023**	10-Jun-2024	✓
0990_POT128_231213,	0990_POT129_231213,							
0990_OTH119_231213,	0990_POT234_231213,							
0990_QC102_231213,	0990_QC301_231213,							
0990_QC401_231213								
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0990_POT231_231212,	0990_POT232_231212,	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**21-Dec-2023**	09-Jun-2024	✓
0990_POT201_231212,	0990_POT198_231212,							
0990_POT125_231212,	0990_OTH118_231212,							
0990_POT127_231212,	0990_POT121_231212							
HDPE (no PTFE) (EP231X)								
0990_POT124_231212,	0990_POT114_231212,	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**22-Dec-2023**	09-Jun-2024	✓
0990_POT131_231212,	0990_POT120_231212,							
0990_QC100_231212,	0990_QC300_231212,							
0990_QC400_231212,	0990_QC500_231212,							
0990_QC101_231212								
HDPE (no PTFE) (EP231X)								
0990_OTH117_231213,	0990_POT130_231213	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**21-Dec-2023**	10-Jun-2024	✓
HDPE (no PTFE) (EP231X)								
0990_POT112_231213,	0990_POT113_231213,	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**22-Dec-2023**	10-Jun-2024	✓
0990_POT128_231213,	0990_POT129_231213,							
0990_OTH119_231213,	0990_POT234_231213,							
0990_QC102_231213,	0990_QC301_231213,							
0990_QC401_231213								

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) 0990_POT231_231212, 0990_POT232_231212, 0990_POT201_231212, 0990_POT198_231212, 0990_POT125_231212, 0990_OTH118_231212, 0990_POT127_231212, 0990_POT121_231212	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**21-Dec-2023**	09-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT124_231212, 0990_POT114_231212, 0990_POT131_231212, 0990_POT120_231212, 0990_QC100_231212, 0990_QC300_231212, 0990_QC400_231212, 0990_QC500_231212, 0990_QC101_231212	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**22-Dec-2023**	09-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_231213, 0990_POT130_231213	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**21-Dec-2023**	10-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT112_231213, 0990_POT113_231213, 0990_POT128_231213, 0990_POT129_231213, 0990_OTH119_231213, 0990_POT234_231213, 0990_QC102_231213, 0990_QC301_231213, 0990_QC401_231213	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**22-Dec-2023**	10-Jun-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0990_POT231_231212, 0990_POT232_231212, 0990_POT201_231212, 0990_POT198_231212, 0990_POT125_231212, 0990_OTH118_231212, 0990_POT127_231212, 0990_POT121_231212	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**21-Dec-2023**	09-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT124_231212, 0990_POT114_231212, 0990_POT131_231212, 0990_POT120_231212, 0990_QC100_231212, 0990_QC300_231212, 0990_QC400_231212, 0990_QC500_231212, 0990_QC101_231212	**12-Dec-2023**	**20-Dec-2023**	09-Jun-2024	✓	**22-Dec-2023**	09-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_231213, 0990_POT130_231213	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**21-Dec-2023**	10-Jun-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT112_231213, 0990_POT113_231213, 0990_POT128_231213, 0990_POT129_231213, 0990_OTH119_231213, 0990_POT234_231213, 0990_QC102_231213, 0990_QC301_231213, 0990_QC401_231213	**13-Dec-2023**	**20-Dec-2023**	10-Jun-2024	✓	**22-Dec-2023**	10-Jun-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	37	**2.70**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	37	**2.70**	**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.

QUALITY CONTROL REPORT

Work Order	: **ES2343442**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +[redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 19-Dec-2023
Order number	: 60612561/3.1	Date Analysis Commenced	: 20-Dec-2023
C-O-C number	: 61426	Issue Date	: 02-Jan-2024
Sampler	: [redacted]		
Site	: Tindal Private Property Sampling		
Quote number	: SY/139/19 V3		
No. of samples received	: 28		
No. of samples analysed	: 28		

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]		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: 5504822)									
ES2343442-006	0990_OTH118_231212	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: 5504822)									
ES2343442-006	0990_OTH118_231212	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: 5504822)									
ES2343442-006	0990_OTH118_231212	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: 5504822) - continued									
ES2343442-006	0990_OTH118_231212	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: 5504822)									
ES2343442-006	0990_OTH118_231212	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: 5504822)									
ES2343442-006	0990_OTH118_231212	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5504822)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	79.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	92.2	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	76.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	95.6	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	85.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	92.5	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5504823)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	81.2	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	88.0	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	90.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	104	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	103	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5504822)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	77.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	92.1	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	82.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	92.7	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	89.1	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	86.3	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	88.1	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.3	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	97.5	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5504823)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	84.7	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	95.1	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	92.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.3	72.0	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: 5504823) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.9	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	93.7	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	99.8	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	95.0	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	89.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.3	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	84.4	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5504822)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	75.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	91.1	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.3	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	91.8	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	95.7	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	82.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	99.0	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5504823)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	91.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	112	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	88.9	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.8	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	85.3	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	98.5	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	74.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5504822)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	94.7	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	89.6	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	83.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	78.1	71.4	144

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: 5504823)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	102	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	94.6	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	105	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	83.9	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5504822)							
ES2343442-006	0990_OTH118_231212	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	80.8	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	89.0	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	89.2	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	106	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	88.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	99.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5504822)							
ES2343442-006	0990_OTH118_231212	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	82.6	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	96.5	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	88.3	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.0	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.9	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.0	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	86.7	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	89.9	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	95.9	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	93.5	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	96.1	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5504822)							
ES2343442-006	0990_OTH118_231212	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	81.3	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	100.0	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	97.8	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	90.0	66.0	145

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: 5504822) - continued							
ES2343442-006	0990_OTH118_231212	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	86.9	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	81.4	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	93.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5504822)							
ES2343442-006	0990_OTH118_231212	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	104	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	81.4	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	87.2	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	90.2	71.4	144

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2343442**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: + [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASOMP_23	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: 61426	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Tindal Private Property Sampling		
Sampler	: [redacted]		

Dates

Date Samples Received	: 19-Dec-2023 08:30	Issue Date	: 19-Dec-2023
Client Requested Due Date	: 02-Jan-2024	Scheduled Reporting Date	: **02-Jan-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 28.5'C DRW 10.3'C 11.0'C 6.4'C SYD
Receipt Detail	:	No. of samples received / analysed	: 28 / 28

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.**
- **QC Forward analysis will be conducted by NMI.**
- 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)
ES2343442-001	12-Dec-2023 12:36	0990_POT231_231212	✓
ES2343442-002	12-Dec-2023 12:37	0990_POT232_231212	✓
ES2343442-003	12-Dec-2023 14:11	0990_POT201_231212	✓
ES2343442-004	12-Dec-2023 14:27	0990_POT198_231212	✓
ES2343442-005	12-Dec-2023 14:45	0990_POT125_231212	✓
ES2343442-006	12-Dec-2023 15:02	0990_OTH118_231212	✓
ES2343442-007	12-Dec-2023 15:43	0990_POT127_231212	✓
ES2343442-008	12-Dec-2023 16:25	0990_POT121_231212	✓
ES2343442-009	13-Dec-2023 07:34	0990_OTH117_231213	✓
ES2343442-010	13-Dec-2023 10:16	0990_POT130_231213	✓
ES2343442-011	12-Dec-2023 16:10	0990_POT124_231212	✓
ES2343442-012	12-Dec-2023 16:03	0990_POT114_231212	✓
ES2343442-013	13-Dec-2023 10:15	0990_POT112_231213	✓
ES2343442-014	13-Dec-2023 08:08	0990_POT113_231213	✓
ES2343442-015	13-Dec-2023 07:56	0990_POT128_231213	✓
ES2343442-016	13-Dec-2023 08:51	0990_POT129_231213	✓
ES2343442-017	13-Dec-2023 09:05	0990_OTH119_231213	✓
ES2343442-019	13-Dec-2023 11:23	0990_POT234_231213	✓
ES2343442-020	12-Dec-2023 17:01	0990_POT131_231212	✓
ES2343442-021	12-Dec-2023 15:39	0990_POT120_231212	✓
ES2343442-022	12-Dec-2023 15:40	0990_QC100_231212	✓
ES2343442-024	12-Dec-2023 14:59	0990_QC300_231212	✓
ES2343442-025	12-Dec-2023 14:59	0990_QC400_231212	✓
ES2343442-026	12-Dec-2023 14:58	0990_QC500_231212	✓
ES2343442-027	12-Dec-2023 16:12	0990_QC101_231212	✓
ES2343442-029	13-Dec-2023 08:48	0990_QC102_231213	✓
ES2343442-031	13-Dec-2023 13:18	0990_QC301_231213	✓
ES2343442-032	13-Dec-2023 13:19	0990_QC401_231213	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

CERTIFICATE OF ANALYSIS

Work Order	: **ES2343442**	Page	: 1 of 15
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_23	Date Samples Received	: 19-Dec-2023 08:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 20-Dec-2023
C-O-C number	: 61426	Issue Date	: 02-Jan-2024 08:00
Sampler	: [redacted]		
Site	: Tindal Private Property Sampling		
Quote number	: SY/139/19 V3		
No. of samples received	: 28		
No. of samples analysed	: 28		

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]		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	0990_POT231_231212	0990_POT232_231212	0990_POT201_231212	0990_POT198_231212	0990_POT125_231212
				Sampling date / time	12-Dec-2023 12:36	12-Dec-2023 12:37	12-Dec-2023 14:11	12-Dec-2023 14:27	12-Dec-2023 14:45
					ES2343442-001	ES2343442-002	ES2343442-003	ES2343442-004	ES2343442-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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	**0.08**	<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	**0.17**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT231_231212	0990_POT232_231212	0990_POT201_231212	0990_POT198_231212	0990_POT125_231212
				Sampling date / time	12-Dec-2023 12:36	12-Dec-2023 12:37	12-Dec-2023 14:11	12-Dec-2023 14:27	12-Dec-2023 14:45
Compound	CAS Number	LOR	Unit		ES2343442-001	ES2343442-002	ES2343442-003	ES2343442-004	ES2343442-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.25**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.25**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.25**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.4**	**91.0**	**101**	**93.6**	**83.4**
13C8-PFOA	----	0.02	%		**102**	**100**	**111**	**100**	**108**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_OTH118_231212	0990_POT127_231212	0990_POT121_231212	0990_OTH117_231213	0990_POT130_231213
				Sampling date / time	12-Dec-2023 15:02	12-Dec-2023 15:43	12-Dec-2023 16:25	13-Dec-2023 07:34	13-Dec-2023 10:16
					ES2343442-006	ES2343442-007	ES2343442-008	ES2343442-009	ES2343442-010
					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	**0.02**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.02**	<0.01	<0.01
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH118_231212	0990_POT127_231212	0990_POT121_231212	0990_OTH117_231213	0990_POT130_231213
				Sampling date / time	12-Dec-2023 15:02	12-Dec-2023 15:43	12-Dec-2023 16:25	13-Dec-2023 07:34	13-Dec-2023 10:16
Compound	CAS Number	LOR	Unit		ES2343442-006	ES2343442-007	ES2343442-008	ES2343442-009	ES2343442-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.04**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**87.4**	**93.0**	**104**	**90.4**	**95.0**
13C8-PFOA	----	0.02	%		**103**	**101**	**108**	**100**	**104**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT124_231212	0990_POT114_231212	0990_POT112_231213	0990_POT113_231213	0990_POT128_231213
				Sampling date / time	12-Dec-2023 16:10	12-Dec-2023 16:03	13-Dec-2023 10:15	13-Dec-2023 08:08	13-Dec-2023 07:56
					ES2343442-011	ES2343442-012	ES2343442-013	ES2343442-014	ES2343442-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.02**	**0.07**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.02**	**0.07**	<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	**0.03**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT124_231212	0990_POT114_231212	0990_POT112_231213	0990_POT113_231213	0990_POT128_231213
				Sampling date / time	12-Dec-2023 16:10	12-Dec-2023 16:03	13-Dec-2023 10:15	13-Dec-2023 08:08	13-Dec-2023 07:56
Compound	CAS Number	LOR	Unit		ES2343442-011	ES2343442-012	ES2343442-013	ES2343442-014	ES2343442-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.04**	**0.17**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.04**	**0.14**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.04**	**0.17**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.4**	**103**	**106**	**94.4**	**102**
13C8-PFOA	----	0.02	%		**97.0**	**98.6**	**97.4**	**95.3**	**93.9**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT129_231213	0990_OTH119_231213	0990_POT234_231213	0990_POT131_231212	0990_POT120_231212
				Sampling date / time	13-Dec-2023 08:51	13-Dec-2023 09:05	13-Dec-2023 11:23	12-Dec-2023 17:01	12-Dec-2023 15:39
					ES2343442-016	ES2343442-017	ES2343442-019	ES2343442-020	ES2343442-021
					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	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<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		<0.01	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT129_231213	0990_OTH119_231213	0990_POT234_231213	0990_POT131_231212	0990_POT120_231212
				Sampling date / time	13-Dec-2023 08:51	13-Dec-2023 09:05	13-Dec-2023 11:23	12-Dec-2023 17:01	12-Dec-2023 15:39
Compound	CAS Number	LOR	Unit		ES2343442-016	ES2343442-017	ES2343442-019	ES2343442-020	ES2343442-021
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.04**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.04**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.04**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.3**	**96.5**	**102**	**95.9**	**101**
13C8-PFOA	----	0.02	%		**101**	**98.8**	**92.6**	**93.6**	**93.7**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC100_231212	0990_QC300_231212	0990_QC400_231212	0990_QC500_231212	0990_QC101_231212
				Sampling date / time	12-Dec-2023 15:40	12-Dec-2023 14:59	12-Dec-2023 14:59	12-Dec-2023 14:58	12-Dec-2023 16:12
Compound	CAS Number	LOR	Unit		ES2343442-022	ES2343442-024	ES2343442-025	ES2343442-026	ES2343442-027
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC100_231212	0990_QC300_231212	0990_QC400_231212	0990_QC500_231212	0990_QC101_231212
				Sampling date / time	12-Dec-2023 15:40	12-Dec-2023 14:59	12-Dec-2023 14:59	12-Dec-2023 14:58	12-Dec-2023 16:12
Compound	CAS Number	LOR	Unit		ES2343442-022	ES2343442-024	ES2343442-025	ES2343442-026	ES2343442-027
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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**	**97.6**	**98.9**	**90.6**	**116**
13C8-PFOA	----	0.02	%		**96.1**	**93.1**	**89.8**	**92.1**	**93.0**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC102_231213	0990_QC301_231213	0990_QC401_231213	----	----
				Sampling date / time	13-Dec-2023 08:48	13-Dec-2023 13:18	13-Dec-2023 13:19	----	----
Compound	CAS Number	LOR	Unit		ES2343442-029	ES2343442-031	ES2343442-032	--------	--------
					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		**0.07**	<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		**0.07**	<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		**0.03**	<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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC102_231213	0990_QC301_231213	0990_QC401_231213	----	----
				Sampling date / time	13-Dec-2023 08:48	13-Dec-2023 13:18	13-Dec-2023 13:19	----	----
Compound	CAS Number	LOR	Unit		ES2343442-029	ES2343442-031	ES2343442-032	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	<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		**0.17**	<0.01	<0.01	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.14**	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.17**	<0.01	<0.01	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.1**	**98.4**	**94.9**	----	----
13C8-PFOA	----	0.02	%		**97.6**	**102**	**98.5**	----	----

Surrogate Control Limits

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

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM SERVICES PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: Client Services

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

SAMPLE DETAILS

NMI Job Name: AECO09/231117/1

Total No. of Samples: 1

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N23/024306	24-NOV-2023	0990_QC200_231113	WATER

SAMPLE RECEIVED CONDITION

Date samples received:	17-NOV-2023
Sample received in good order:	Yes
NMI Quotation no. provided:	
Client purchase order number:	60612561_3_1
Temperature of samples:	Chilled
Comments:	ALL OK
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO09/231117/1 **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	117	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	105	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	106	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	110	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	112	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	105	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	117	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	94	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	112	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	120	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	119	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	129	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	135	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	126	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	105	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	106	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	100	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	119	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	128	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	114	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	104	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	143	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	109	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	101	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	101	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	115	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	116	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	88	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	113	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	108	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	106	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	121	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:

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

NATA

REPORT OF ANALYSIS

Report No. RN1411892

Client	: AECOM SERVICES PTY LTD [redacted]T	**Job No.**	: AECO09/231117/1
	[redacted]	**Quote No.**	: QT-02232
		Order No.	: 60612561_3_1
		Date Received	: 17-NOV-2023
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_23		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/024306	0990_QC200_231113	WATER

Lab Reg No.		N23/024306				
Date Sampled		13-NOV-2023				
	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	<0.01				NR70
PFHxS (355-46-4)	ug/L	0.052				NR70
PFHpS (375-92-8)	ug/L	<0.01				NR70
PFOS (1763-23-1)	ug/L	0.23				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.		N23/024306				
Date Sampled		13-NOV-2023				
	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)	%	105				NR70
PFPeA (Surrogate Recovery)	%	113				NR70
PFHxA (Surrogate Recovery)	%	91				NR70
PFHpA (Surrogate Recovery)	%	104				NR70
PFOA (Surrogate Recovery)	%	108				NR70
PFNA (Surrogate Recovery)	%	96				NR70
PFDA (Surrogate Recovery)	%	95				NR70
PFUdA (Surrogate Recovery)	%	85				NR70
PFDoA (Surrogate Recovery)	%	81				NR70
PFTeDA (Surrogate Recovery)	%	74				NR70
PFHxDA (Surrogate Recovery)	%	92				NR70
FOUEA (Surrogate Recovery)	%	82				NR70
PFBS (Surrogate Recovery)	%	107				NR70
PFHxS (Surrogate Recovery)	%	109				NR70
PFOS (Surrogate Recovery)	%	99				NR70
PFOSA (Surrogate Recovery)	%	68				NR70
N-MeFOSA (Surrogate Recovery)	%	45				NR70
N-EtFOSA (Surrogate Recovery)	%	43				NR70
N-MeFOSAA (Surrogate Recovery)	%	62				NR70
N-EtFOSAA (Surrogate Recovery)	%	60				NR70
N-MeFOSE (Surrogate Recovery)	%	57				NR70
N-EtFOSE (Surrogate Recovery)	%	49				NR70
4:2 FTS (Surrogate Recovery)	%	255				NR70
6:2 FTS (Surrogate Recovery)	%	171				NR70
8:2 FTS (Surrogate Recovery)	%	119				NR70
8:2 diPAP (Surrogate Recovery)	%	80				NR70
Dates						
Date extracted		20-NOV-2023				
Date analysed		21-NOV-2023				

N23/024306
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.

[redacted]

NATA
WORLD RECOGNISED ACCREDITATION

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.

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: Client Services

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

SAMPLE DETAILS

NMI Job Name: **AECO06/231123**

Total No. of Samples: **3**

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N23/024778	30-NOV-2023	0990_QC200_231113	WATER 13/11/2023 16:23
N23/024779	30-NOV-2023	0990_QC201_231113	WATER 13/11/2023 16:24

SAMPLE RECEIVED CONDITION

Date samples received:	23-NOV-2023
Sample received in good order:	Yes
NMI Quotation no. provided:	NT_0990_PFASOMP_23
Client purchase order number:	60612561/3_1
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/231123 **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	128	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	103	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	97	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	102	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	110	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	100	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	98	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	114	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	99	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	109	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	119	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	95	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	99	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	101	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	99	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	103	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	95	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	133	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	99	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	87	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	95	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	96	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	92	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	95	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	101	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	97	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	103	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	91	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	84	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 and Resources

National Measurement Institute

NATA

REPORT OF ANALYSIS

Report No. RN1412529

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/231123
	L[redacted]	**Quote No.**	: QT-02232
	[redacted]ET	**Order No.**	: 60612561/3_1
		Date Received	: 23-NOV-2023
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_23		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/024778	0990_QC200_231113	WATER 13/11/2023 16:23
N23/024779	0990_QC201_231113	WATER 13/11/2023 16:24
N23/024780	0990_QC202_231114	WATER 14/11/2023 11:09

Lab Reg No.		N23/024778	N23/024779	N23/024780		
Date Sampled		13-NOV-2023	13-NOV-2023	14-NOV-2023		
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	<0.05	<0.05		NR70
PFPeA (2706-90-3)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxA (307-24-4)	ug/L	<0.01	<0.01	<0.01		NR70
PFHpA (375-85-9)	ug/L	<0.01	<0.01	<0.01		NR70
PFOA (335-67-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFNA (375-95-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02	<0.02		NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02	<0.02		NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05	<0.05		NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01	<0.01		NR70
PFPeS (2706-91-4)	ug/L	<0.01	<0.01	<0.01		NR70
PFHxS (355-46-4)	ug/L	0.023	<0.01	<0.01		NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFOS (1763-23-1)	ug/L	<0.02	<0.02	<0.02		NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFBS (375-73-5)	ug/L	<0.01	<0.01	<0.01		NR70
PFOSA (754-91-6)	ug/L	<0.05	<0.05	<0.05		NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02	<0.02		NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02	<0.02		NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01	<0.01		NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05	<0.05		NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05	<0.05		NR70

REPORT OF ANALYSIS

Report No. RN1412529

Lab Reg No.		N23/024778	N23/024779	N23/024780		
Date Sampled		13-NOV-2023	13-NOV-2023	14-NOV-2023		
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01	<0.01		NR70
6:2 FTS (27619-97-2)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	<0.01	<0.01		NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02	<0.02		NR70
PFBA (Surrogate Recovery)	%	103	99	99		NR70
PFPeA (Surrogate Recovery)	%	103	103	99		NR70
PFHxA (Surrogate Recovery)	%	107	102	106		NR70
PFHpA (Surrogate Recovery)	%	108	102	106		NR70
PFOA (Surrogate Recovery)	%	105	104	101		NR70
PFNA (Surrogate Recovery)	%	96	91	87		NR70
PFDA (Surrogate Recovery)	%	102	100	102		NR70
PFUdA (Surrogate Recovery)	%	98	100	102		NR70
PFDoA (Surrogate Recovery)	%	92	94	92		NR70
PFTeDA (Surrogate Recovery)	%	93	96	102		NR70
PFHxDA (Surrogate Recovery)	%	110	119	129		NR70
FOUEA (Surrogate Recovery)	%	90	74	78		NR70
PFBS (Surrogate Recovery)	%	110	104	103		NR70
PFHxS (Surrogate Recovery)	%	104	110	107		NR70
PFOS (Surrogate Recovery)	%	100	92	94		NR70
PFOSA (Surrogate Recovery)	%	90	77	75		NR70
N-MeFOSA (Surrogate Recovery)	%	190	145	145		NR70
N-EtFOSA (Surrogate Recovery)	%	221	169	169		NR70
N-MeFOSAA (Surrogate Recovery)	%	92	89	86		NR70
N-EtFOSAA (Surrogate Recovery)	%	96	94	87		NR70
N-MeFOSE (Surrogate Recovery)	%	107	84	82		NR70
N-EtFOSE (Surrogate Recovery)	%	95	80	78		NR70
4:2 FTS (Surrogate Recovery)	%	89	101	98		NR70
6:2 FTS (Surrogate Recovery)	%	87	93	88		NR70
8:2 FTS (Surrogate Recovery)	%	91	83	87		NR70
8:2 diPAP (Surrogate Recovery)	%	121	125	124		NR70
Dates						
Date extracted		28-NOV-2023	28-NOV-2023	28-NOV-2023		
Date analysed		29-NOV-2023	29-NOV-2023	29-NOV-2023		

N23/024778
to
N23/024780

[redacted]

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.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô
High PFAS surrogate recoveries accepted - results corrected for recovery.
LOR raised for PFOSA in samples N23/024778-N23/024780 due to analytical interferences.

[redacted]

NATA
WORLD RECOGNISED ACCREDITATION

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.

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

[redacted]

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer: AECOM AUSTRALIA PTY LTD

Address: [redacted]

Email: [redacted]

Telephone:

LABORATORY DETAILS

Lab: National Measurement Institute

Contact: Client Services

Address: [redacted]

Email: [redacted]

Telephone: [redacted]

SAMPLE DETAILS

NMI Job Name: AECO06/231220/3

Total No. of Samples: 3

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N23/027	5-JAN-2024	0990_QC200_231212	WATER 12/12/2023 16:40
N23/027136	5-JAN-2024	0990_QC201_231212	WATER 12/12/2023 17:43

SAMPLE RECEIVED CONDITION

Date samples received:	20-DEC-2023
Sample received in good order:	Yes
NMI Quotation no. provided:	NT_0990_PFASOMP_23
Client purchase order number:	60612561_3_1
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

NATA

REPORT OF ANALYSIS

Report No. RN1415095

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/231220/3
	[redacted]	**Quote No.**	: QT-02232
	[redacted]	**Order No.**	: 60612561_3_1
		Date Received	: 20-DEC-2023
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_23		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N23/027135	0990_QC200_231212	WATER 12/12/2023 16:40
N23/027136	0990_QC201_231212	WATER 12/12/2023 17:43
N23/027137	0990_QC202_231213	WATER 13/12/2023 10:18

Lab Reg No.		N23/027135	N23/027136	N23/027137		
Date Sampled		12-DEC-2023	12-DEC-2023	13-DEC-2023		
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	<0.05	<0.05		NR70
PFPeA (2706-90-3)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxA (307-24-4)	ug/L	<0.01	<0.01	0.016		NR70
PFHpA (375-85-9)	ug/L	<0.01	<0.01	<0.01		NR70
PFOA (335-67-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFNA (375-95-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02	<0.02		NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02	<0.02		NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05	<0.05		NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01	<0.01		NR70
PFPeS (2706-91-4)	ug/L	<0.01	<0.01	0.011		NR70
PFHxS (355-46-4)	ug/L	<0.01	<0.01	0.056		NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFOS (1763-23-1)	ug/L	<0.02	<0.02	0.043		NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFBS (375-73-5)	ug/L	<0.01	<0.01	0.010		NR70
PFOSA (754-91-6)	ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02	<0.02		NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02	<0.02		NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01	<0.01		NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05	<0.05		NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05	<0.05		NR70

REPORT OF ANALYSIS

Lab Reg No.		N23/027135	N23/027136	N23/027137		
Date Sampled		12-DEC-2023	12-DEC-2023	13-DEC-2023		
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01	<0.01		NR70
6:2 FTS (27619-97-2)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	<0.01	<0.01		NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02	<0.02		NR70
PFBA (Surrogate Recovery)	%	89	86	87		NR70
PFPeA (Surrogate Recovery)	%	82	82	85		NR70
PFHxA (Surrogate Recovery)	%	90	85	82		NR70
PFHpA (Surrogate Recovery)	%	85	85	84		NR70
PFOA (Surrogate Recovery)	%	91	84	80		NR70
PFNA (Surrogate Recovery)	%	85	76	85		NR70
PFDA (Surrogate Recovery)	%	92	79	87		NR70
PFUdA (Surrogate Recovery)	%	80	79	89		NR70
PFDoA (Surrogate Recovery)	%	74	75	85		NR70
PFTeDA (Surrogate Recovery)	%	68	73	83		NR70
PFHxDA (Surrogate Recovery)	%	74	88	86		NR70
FOUEA (Surrogate Recovery)	%	80	78	79		NR70
PFBS (Surrogate Recovery)	%	90	83	86		NR70
PFHxS (Surrogate Recovery)	%	90	84	87		NR70
PFOS (Surrogate Recovery)	%	87	85	92		NR70
PFOSA (Surrogate Recovery)	%	80	77	85		NR70
N-MeFOSA (Surrogate Recovery)	%	64	84	82		NR70
N-EtFOSA (Surrogate Recovery)	%	63	85	79		NR70
N-MeFOSAA (Surrogate Recovery)	%	78	78	88		NR70
N-EtFOSAA (Surrogate Recovery)	%	75	81	99		NR70
N-MeFOSE (Surrogate Recovery)	%	82	99	96		NR70
N-EtFOSE (Surrogate Recovery)	%	61	81	76		NR70
4:2 FTS (Surrogate Recovery)	%	85	73	73		NR70
6:2 FTS (Surrogate Recovery)	%	74	68	71		NR70
8:2 FTS (Surrogate Recovery)	%	111	98	98		NR70
8:2 diPAP (Surrogate Recovery)	%	123	101	146		NR70
Dates						
Date extracted		2-JAN-2024	2-JAN-2024	2-JAN-2024		
Date analysed		3-JAN-2024	3-JAN-2024	3-JAN-2024		

N23/027135
to
N23/027137
PFOS and PFHxS are quantified using a combined branched and linear standard,

REPORT OF ANALYSIS

linear and branched isomers are totalled for reporting.
All results corrected for labelled surrogate recoveries.

[redacted]

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This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/231220/3 **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	106	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	104	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	102	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	110	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	106	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	112	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	102	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	104	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	100	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	102	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	103	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	104	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	103	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	113	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	105	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	109	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	114	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	113	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	96	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	93	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	114	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	99	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	90	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	100	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	108	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	95	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	118	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	115	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	88	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]

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2401443**	Page	: 1 of 7
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]55
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 18-Jan-2024
Site	: Private Property Sampling	Issue Date	: 24-Jan-2024
Sampler	: [redacted]	No. of samples received	: 29
Order number	: 60612561/3.1	No. of samples analysed	: 29

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.**

QUALITY CONTROL REPORT

Work Order	: **ES2401443**	Page	: 1 of 15
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: Loren Schiavon
Address	: [redacted]	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 18-Jan-2024
Order number	: 60612561/3.1	Date Analysis Commenced	: 19-Jan-2024
C-O-C number	: 62444	Issue Date	: 24-Jan-2024
Sampler	: [redacted]		
Site	: Private Property Sampling		
Quote number	: SY/139/19 V3		
No. of samples received	: 29		
No. of samples analysed	: 29		

Accreditation No. 825
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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]	[redacted]	

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5552920)									
ES2401469-001	Anonymous	EA055: Moisture Content	----	0.1	%	24.4	24.8	1.8	0% - 20%
ES2401572-003	Anonymous	EA055: Moisture Content	----	0.1	%	10.5	9.0	15.7	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5549840)									
ES2401443-031	0990_OTH129_240116	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	0.0018	0.0020	6.1	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
ES2401710-004	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0006	0.0005	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: 5549840)									
ES2401443-031	0990_OTH129_240116	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	0.0004	0.0005	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

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: 5549840) - continued									
ES2401443-031	0990_OTH129_240116	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
ES2401710-004	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		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: 5549840)									
ES2401443-031	0990_OTH129_240116	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
ES2401710-004	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

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: 5549840) - continued									
ES2401710-004	Anonymous	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: 5549840)									
ES2401443-031	0990_OTH129_240116	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
ES2401710-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

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: 5551114)									
ES2401443-004	0990_POT113_240115	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.24	0.23	5.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.19	0.22	16.2	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	0.05	0.05	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
ES2401443-017	0990_SW153_240116	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5551116)									

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: 5551116) - continued									
ES2401444-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	13.1	15.0	13.4	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	41.3	40.3	2.5	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	2.50	2.63	4.8	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	3.26	3.33	2.2	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	2.21	2.23	1.0	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2401444-007	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.20	0.19	6.2	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.50	0.48	3.2	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	0.02	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: 5551114)									
ES2401443-004	0990_POT113_240115	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	0.08	0.08	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
ES2401443-017	0990_SW153_240116	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: 5551116)									
ES2401444-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.93	2.09	8.1	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 (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5551116) - continued									
ES2401444-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	1.71	1.78	3.8	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	6.58	7.52	13.3	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	1.12	1.08	3.3	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.06	0.07	16.9	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	1.3	1.4	0.0	0% - 50%
ES2401444-007	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.01	0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.18	0.18	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.09	0.09	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	0.2	0.2	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5551114)									
ES2401443-004	0990_POT113_240115	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
ES2401443-017	0990_SW153_240116	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: 5551114) - continued									
ES2401443-017	0990_SW153_240116	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: 5551116)									
ES2401444-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	0.09	0.10	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
ES2401444-007	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		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: 5551114)									
ES2401443-004	0990_POT113_240115	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: 5551114) - continued									
ES2401443-004	0990_POT113_240115	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
ES2401443-017	0990_SW153_240116	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: 5551116)									
ES2401444-001	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	0.06	0.07	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
ES2401444-007	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5551114)									
ES2401443-004	0990_POT113_240115	EP231X: Sum of PFAS	----	0.01	µg/L	0.61	0.63	3.2	0% - 20%
ES2401443-017	0990_SW153_240116	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5551116)									
ES2401444-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	75.2	77.6	3.1	0% - 20%
ES2401444-007	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	1.24	1.21	2.4	0% - 20%

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5549840)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	89.6	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.9	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.2	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.5	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.3	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5549840)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	93.5	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.2	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.7	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.5	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.8	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	108	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5549840)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	115	71.6	129
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	100	69.8	131
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	103	68.7	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	86.6	65.1	134
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5549840)								

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: 5549840) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	99.0	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	114	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	110	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.2	143

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: 5551114)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	83.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	106	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	98.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	96.5	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	92.3	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	87.8	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5551116)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	96.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	102	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	117	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	119	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	97.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5551114)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	102	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	98.7	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.7	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	96.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	90.7	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	113	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: 5551116)								

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: 5551116) - continued								
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	107	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	107	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	99.7	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	97.8	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	115	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	113	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5551114)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	93.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	100	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	93.1	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.9	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	97.8	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	98.3	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.4	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5551116)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	107	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	105	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	105	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	112	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5551114)								

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: 5551114) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	103	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	97.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	88.0	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5551116)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	109	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	108	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	87.4	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **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: 5549840)							
ES2401443-031	0990_OTH129_240116	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	89.8	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	97.5	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	95.5	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	104	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	113	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	96.6	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5549840)							
ES2401443-031	0990_OTH129_240116	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	91.6	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	101	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	101	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	97.8	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	102	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	98.3	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	99.1	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	95.3	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	107	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	101	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	105	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5549840)							

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
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5549840) - continued							
ES2401443-031	0990_OTH129_240116	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	92.2	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	113	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	104	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	97.9	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	98.6	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	104	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	100.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5549840)							
ES2401443-031	0990_OTH129_240116	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	91.6	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	104	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	91.2	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	85.5	69.2	143

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: 5551114)							
ES2401443-005	0990_POT120_240116	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	95.5	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	118	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	114	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	116	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	112	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	111	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5551116)							
ES2401444-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	99.4	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	116	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	# Not Determined	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	133	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	108	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5551114)							
ES2401443-005	0990_POT120_240116	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	106	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: 5551114) - continued							
ES2401443-005	0990_POT120_240116	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	115	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	113	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	109	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	108	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	112	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	107	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	106	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	119	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	121	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5551116)							
ES2401444-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	106	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	107	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	105	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	103	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	103	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	112	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	102	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	111	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	106	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	117	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5551114)							
ES2401443-005	0990_POT120_240116	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	120	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	100	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	112	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	109	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	112	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	99.5	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5551116)							
ES2401444-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	101	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	117	68.0	141

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5551116) - continued							
ES2401444-002	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	100	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	106	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	114	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	122	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	113	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5551114)							
ES2401443-005	0990_POT120_240116	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	114	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	110	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	107	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	101	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5551116)							
ES2401444-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	105	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	105	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	102	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	83.7	71.4	144

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	ES2401444--002	Anonymous	**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	ES2401444--002	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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)							
0990_OTH129_240116, 0990_QC103_240116	**16-Jan-2024**	**----**	----	----	**21-Jan-2024**	30-Jan-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0990_OTH129_240116, 0990_QC103_240116	**16-Jan-2024**	**19-Jan-2024**	14-Jul-2024	✓	**22-Jan-2024**	28-Feb-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
0990_OTH129_240116, 0990_QC103_240116	**16-Jan-2024**	**19-Jan-2024**	14-Jul-2024	✓	**22-Jan-2024**	28-Feb-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0990_OTH129_240116, 0990_QC103_240116	**16-Jan-2024**	**19-Jan-2024**	14-Jul-2024	✓	**22-Jan-2024**	28-Feb-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0990_OTH129_240116, 0990_QC103_240116	**16-Jan-2024**	**19-Jan-2024**	14-Jul-2024	✓	**22-Jan-2024**	28-Feb-2024	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0990_OTH129_240116, 0990_QC103_240116	**16-Jan-2024**	**19-Jan-2024**	14-Jul-2024	✓	**22-Jan-2024**	28-Feb-2024	✓

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)							
0990_OTH119_240115, 0990_POT112_240115, 0990_POT113_240115, 0990_POT121_240115, 0990_POT125_240115, 0990_POT128_240115, 0990_POT129_240115, 0990_POT131_240115, 0990_POT201_240115, 0990_QC100_240115, 0990_QC300_240115, 0990_QC400_240115, 0990_QC500_240115	**15-Jan-2024**	**22-Jan-2024**	13-Jul-2024	✓	**23-Jan-2024**	13-Jul-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH118_240116, 0990_POT120_240116, 0990_POT124_240116, 0990_POT127_240116, 0990_POT130_240116, 0990_POT198_240116, 0990_SW108_240116, 0990_SW153_240116, 0990_QC101_240116, 0990_QC102_240116, 0990_QC301_240116, 0990_QC401_240116, 0990_OTH008_240116, 0990_POT235_240116	**16-Jan-2024**	**22-Jan-2024**	14-Jul-2024	✓	**23-Jan-2024**	14-Jul-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0990_OTH119_240115, 0990_POT112_240115, 0990_POT113_240115, 0990_POT121_240115, 0990_POT125_240115, 0990_POT128_240115, 0990_POT129_240115, 0990_POT131_240115, 0990_POT201_240115, 0990_QC100_240115, 0990_QC300_240115, 0990_QC400_240115, 0990_QC500_240115	**15-Jan-2024**	**22-Jan-2024**	13-Jul-2024	✓	**23-Jan-2024**	13-Jul-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH118_240116, 0990_POT120_240116, 0990_POT124_240116, 0990_POT127_240116, 0990_POT130_240116, 0990_POT198_240116, 0990_SW108_240116, 0990_SW153_240116, 0990_QC101_240116, 0990_QC102_240116, 0990_QC301_240116, 0990_QC401_240116, 0990_OTH008_240116, 0990_POT235_240116	**16-Jan-2024**	**22-Jan-2024**	14-Jul-2024	✓	**23-Jan-2024**	14-Jul-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0990_OTH119_240115, 0990_POT112_240115, 0990_POT113_240115, 0990_POT121_240115, 0990_POT125_240115, 0990_POT128_240115, 0990_POT129_240115, 0990_POT131_240115, 0990_POT201_240115, 0990_QC100_240115, 0990_QC300_240115, 0990_QC400_240115, 0990_QC500_240115	**15-Jan-2024**	**22-Jan-2024**	13-Jul-2024	✓	**23-Jan-2024**	13-Jul-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH118_240116, 0990_POT120_240116, 0990_POT124_240116, 0990_POT127_240116, 0990_POT130_240116, 0990_POT198_240116, 0990_SW108_240116, 0990_SW153_240116, 0990_QC101_240116, 0990_QC102_240116, 0990_QC301_240116, 0990_QC401_240116, 0990_OTH008_240116, 0990_POT235_240116	**16-Jan-2024**	**22-Jan-2024**	14-Jul-2024	✓	**23-Jan-2024**	14-Jul-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0990_OTH119_240115, 0990_POT112_240115, 0990_POT113_240115, 0990_POT121_240115, 0990_POT125_240115, 0990_POT128_240115, 0990_POT129_240115, 0990_POT131_240115, 0990_POT201_240115, 0990_QC100_240115, 0990_QC300_240115, 0990_QC400_240115, 0990_QC500_240115	**15-Jan-2024**	**22-Jan-2024**	13-Jul-2024	✓	**23-Jan-2024**	13-Jul-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH118_240116, 0990_POT120_240116, 0990_POT124_240116, 0990_POT127_240116, 0990_POT130_240116, 0990_POT198_240116, 0990_SW108_240116, 0990_SW153_240116, 0990_QC101_240116, 0990_QC102_240116, 0990_QC301_240116, 0990_QC401_240116, 0990_OTH008_240116, 0990_POT235_240116	**16-Jan-2024**	**22-Jan-2024**	14-Jul-2024	✓	**23-Jan-2024**	14-Jul-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0990_OTH119_240115, 0990_POT112_240115, 0990_POT113_240115, 0990_POT121_240115, 0990_POT125_240115, 0990_POT128_240115, 0990_POT129_240115, 0990_POT131_240115, 0990_POT201_240115, 0990_QC100_240115, 0990_QC300_240115, 0990_QC400_240115, 0990_QC500_240115	**15-Jan-2024**	**22-Jan-2024**	13-Jul-2024	✓	**23-Jan-2024**	13-Jul-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH118_240116, 0990_POT120_240116, 0990_POT124_240116, 0990_POT127_240116, 0990_POT130_240116, 0990_POT198_240116, 0990_SW108_240116, 0990_SW153_240116, 0990_QC101_240116, 0990_QC102_240116, 0990_QC301_240116, 0990_QC401_240116, 0990_OTH008_240116, 0990_POT235_240116	**16-Jan-2024**	**22-Jan-2024**	14-Jul-2024	✓	**23-Jan-2024**	14-Jul-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2401443**	Page	: 1 of 17
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 18-Jan-2024 08:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 19-Jan-2024
C-O-C number	: 62444	Issue Date	: 24-Jan-2024 08:28
Sampler	[redacted]		
Site	: Private Property Sampling		
Quote number	: SY/139/19 V3		
No. of samples received	: 29		
No. of samples analysed	: 29		

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]		

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: SOIL (Matrix: SOIL)				Sample ID	0990_OTH129_240116	0990_QC103_240116	----	----	----
				Sampling date / time	16-Jan-2024 11:03	16-Jan-2024 11:57	----	----	----
Compound	CAS Number	LOR	Unit		ES2401443-031	ES2401443-032	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**62.9**	**74.2**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0002**	**0.0003**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0018**	**0.0032**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0004**	**0.0005**	----	----	----
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	<0.0002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0990_OTH129_240116	0990_QC103_240116	----	----	----
				Sampling date / time	16-Jan-2024 11:03	16-Jan-2024 11:57	----	----	----
Compound	CAS Number	LOR	Unit		ES2401443-031	ES2401443-032	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0024**	**0.0042**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0020**	**0.0035**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0024**	**0.0042**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**89.6**	**93.4**	----	----	----
13C8-PFOA	----	0.0002	%		**97.4**	**97.8**	----	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_OTH118_240116	0990_OTH119_240115	0990_POT112_240115	0990_POT113_240115	0990_POT120_240116
				Sampling date / time	16-Jan-2024 08:18	15-Jan-2024 12:15	15-Jan-2024 12:05	15-Jan-2024 11:55	16-Jan-2024 08:45
					ES2401443-001	ES2401443-002	ES2401443-003	ES2401443-004	ES2401443-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	**0.04**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.05**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.04**	**0.24**	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.10**	**0.19**	**0.03**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**0.05**	**0.08**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH118_240116	0990_OTH119_240115	0990_POT112_240115	0990_POT113_240115	0990_POT120_240116
				Sampling date / time	16-Jan-2024 08:18	15-Jan-2024 12:15	15-Jan-2024 12:05	15-Jan-2024 11:55	16-Jan-2024 08:45
Compound	CAS Number	LOR	Unit		ES2401443-001	ES2401443-002	ES2401443-003	ES2401443-004	ES2401443-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.19**	**0.61**	**0.05**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.14**	**0.43**	**0.05**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.19**	**0.56**	**0.05**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**100**	**99.3**	**99.2**	**93.3**	**87.0**
13C8-PFOA	----	0.02	%		**93.3**	**93.8**	**95.1**	**91.4**	**94.7**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT121_240115	0990_POT124_240116	0990_POT125_240115	0990_POT127_240116	0990_POT128_240115
				Sampling date / time	15-Jan-2024 11:25	16-Jan-2024 07:52	15-Jan-2024 12:21	16-Jan-2024 08:32	15-Jan-2024 11:50
					ES2401443-006	ES2401443-007	ES2401443-008	ES2401443-009	ES2401443-010
					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		**0.02**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT121_240115	0990_POT124_240116	0990_POT125_240115	0990_POT127_240116	0990_POT128_240115
				Sampling date / time	15-Jan-2024 11:25	16-Jan-2024 07:52	15-Jan-2024 12:21	16-Jan-2024 08:32	15-Jan-2024 11:50
Compound	CAS Number	LOR	Unit		ES2401443-006	ES2401443-007	ES2401443-008	ES2401443-009	ES2401443-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.9**	**93.8**	**93.7**	**98.0**	**100**
13C8-PFOA	----	0.02	%		**91.8**	**92.5**	**90.9**	**88.1**	**91.4**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT129_240115	0990_POT130_240116	0990_POT131_240115	0990_POT198_240116	0990_POT201_240115
				Sampling date / time	15-Jan-2024 11:32	16-Jan-2024 08:56	15-Jan-2024 16:39	16-Jan-2024 08:08	15-Jan-2024 12:29
Compound	CAS Number	LOR	Unit		ES2401443-011	ES2401443-012	ES2401443-013	ES2401443-014	ES2401443-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT129_240115	0990_POT130_240116	0990_POT131_240115	0990_POT198_240116	0990_POT201_240115
				Sampling date / time	15-Jan-2024 11:32	16-Jan-2024 08:56	15-Jan-2024 16:39	16-Jan-2024 08:08	15-Jan-2024 12:29
Compound	CAS Number	LOR	Unit		ES2401443-011	ES2401443-012	ES2401443-013	ES2401443-014	ES2401443-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	%		**98.7**	**101**	**94.1**	**97.1**	**97.0**
13C8-PFOA	----	0.02	%		**93.4**	**91.9**	**92.7**	**91.9**	**90.4**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW108_240116	0990_SW153_240116	0990_QC100_240115	0990_QC101_240116	0990_QC102_240116
				Sampling date / time	16-Jan-2024 10:06	16-Jan-2024 10:17	15-Jan-2024 11:33	16-Jan-2024 08:19	16-Jan-2024 08:46
Compound	CAS Number	LOR	Unit		ES2401443-016	ES2401443-017	ES2401443-018	ES2401443-019	ES2401443-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.03**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.05**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.22**	<0.01	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.17**	<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	**0.07**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW108_240116	0990_SW153_240116	0990_QC100_240115	0990_QC101_240116	0990_QC102_240116
				Sampling date / time	16-Jan-2024 10:06	16-Jan-2024 10:17	15-Jan-2024 11:33	16-Jan-2024 08:19	16-Jan-2024 08:46
Compound	CAS Number	LOR	Unit		ES2401443-016	ES2401443-017	ES2401443-018	ES2401443-019	ES2401443-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.55**	<0.01	**0.04**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.39**	<0.01	**0.04**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.50**	<0.01	**0.04**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.7**	**95.9**	**92.0**	**91.2**	**92.4**
13C8-PFOA	----	0.02	%		**93.3**	**96.2**	**91.8**	**92.9**	**91.0**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC300_240115	0990_QC301_240116	0990_QC400_240115	0990_QC401_240116	0990_QC500_240115
				Sampling date / time	15-Jan-2024 11:37	16-Jan-2024 08:34	15-Jan-2024 11:38	16-Jan-2024 08:35	15-Jan-2024 11:33
Compound	CAS Number	LOR	Unit		ES2401443-024	ES2401443-025	ES2401443-026	ES2401443-027	ES2401443-028
					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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC300_240115	0990_QC301_240116	0990_QC400_240115	0990_QC401_240116	0990_QC500_240115
				Sampling date / time	15-Jan-2024 11:37	16-Jan-2024 08:34	15-Jan-2024 11:38	16-Jan-2024 08:35	15-Jan-2024 11:33
Compound	CAS Number	LOR	Unit		ES2401443-024	ES2401443-025	ES2401443-026	ES2401443-027	ES2401443-028
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	%		**98.7**	**97.4**	**94.6**	**97.7**	**93.2**
13C8-PFOA	----	0.02	%		**92.8**	**91.3**	**93.1**	**96.7**	**91.9**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH008_240116	0990_POT235_240116	----	----	----
				Sampling date / time	16-Jan-2024 11:47	16-Jan-2024 11:02	----	----	----
Compound	CAS Number	LOR	Unit		ES2401443-029	ES2401443-030	--------	--------	--------
					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		**0.03**	**0.08**	----	----	----
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**	**0.10**	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH008_240116	0990_POT235_240116	----	----	----
				Sampling date / time	16-Jan-2024 11:47	16-Jan-2024 11:02	----	----	----
Compound	CAS Number	LOR	Unit		ES2401443-029	ES2401443-030	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	----	----	----
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		**0.06**	**0.18**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.06**	**0.18**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.06**	**0.18**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.8**	**95.2**	----	----	----
13C8-PFOA	----	0.02	%		**89.7**	**92.6**	----	----	----

Surrogate Control Limits

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

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2401443**

Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASOMP_24	Page	: 1 of 4
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: 62444	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Private Property Sampling		
Sampler	: [redacted]		

Dates

Date Samples Received	: 18-Jan-2024 08:30	Issue Date	: 18-Jan-2024
Client Requested Due Date	: 24-Jan-2024	Scheduled Reporting Date	: **24-Jan-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 3.2'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 29 / 29

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
- **QC Forward analysis will be conducted by NMI.**
- **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.

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2404747**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: [redacted]
Project	: NT_0990_PFASMGMT_24	Date Samples Received	: 15-Feb-2024
Site	: Autosampler	Issue Date	: 19-Feb-2024
Sampler	: [redacted]	No. of samples received	: 31
Order number	: 60676801/3.03.02	No. of samples analysed	: 23

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
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	30	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	30	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) 0990_SW016_01_240209, 0990_SW016_02_240209, 0990_SW016_03_240210, 0990_SW016_04_240210	**09-Feb-2024**	**16-Feb-2024**	07-Aug-2024	✓	**19-Feb-2024**	07-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_05_240210, 0990_SW016_06_240210, 0990_SW016_07_240210, 0990_SW016_08_240210, 0990_SW016_09_240210, 0990_SW016_10_240210, 0990_SW016_12_240210, 0990_SW016_14_240210, 0990_SW016_16_240210, 0990_SW016_18_240211	**10-Feb-2024**	**16-Feb-2024**	08-Aug-2024	✓	**19-Feb-2024**	08-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_20_240211, 0990_SW016_21_240211	**11-Feb-2024**	**16-Feb-2024**	09-Aug-2024	✓	**19-Feb-2024**	09-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC110_240212, 0990_QC111_240212, 0990_QC112_240212, 0990_SW016_240212	**12-Feb-2024**	**16-Feb-2024**	10-Aug-2024	✓	**19-Feb-2024**	10-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC310_240212, 0990_QC410_240212, 0990_QC510_240212	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**19-Feb-2024**	12-Aug-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0990_SW016_01_240209, 0990_SW016_02_240209, 0990_SW016_03_240210, 0990_SW016_04_240210	**09-Feb-2024**	**16-Feb-2024**	07-Aug-2024	✓	**19-Feb-2024**	07-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_05_240210, 0990_SW016_06_240210, 0990_SW016_07_240210, 0990_SW016_08_240210, 0990_SW016_09_240210, 0990_SW016_10_240210, 0990_SW016_12_240210, 0990_SW016_14_240210, 0990_SW016_16_240210, 0990_SW016_18_240211	**10-Feb-2024**	**16-Feb-2024**	08-Aug-2024	✓	**19-Feb-2024**	08-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_20_240211, 0990_SW016_21_240211	**11-Feb-2024**	**16-Feb-2024**	09-Aug-2024	✓	**19-Feb-2024**	09-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC110_240212, 0990_QC111_240212, 0990_QC112_240212, 0990_SW016_240212	**12-Feb-2024**	**16-Feb-2024**	10-Aug-2024	✓	**19-Feb-2024**	10-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC310_240212, 0990_QC410_240212, 0990_QC510_240212	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**19-Feb-2024**	12-Aug-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0990_SW016_01_240209, 0990_SW016_02_240209, 0990_SW016_03_240210, 0990_SW016_04_240210	**09-Feb-2024**	**16-Feb-2024**	07-Aug-2024	✓	**19-Feb-2024**	07-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_05_240210, 0990_SW016_06_240210, 0990_SW016_07_240210, 0990_SW016_08_240210, 0990_SW016_09_240210, 0990_SW016_10_240210, 0990_SW016_12_240210, 0990_SW016_14_240210, 0990_SW016_16_240210, 0990_SW016_18_240211	**10-Feb-2024**	**16-Feb-2024**	08-Aug-2024	✓	**19-Feb-2024**	08-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_20_240211, 0990_SW016_21_240211	**11-Feb-2024**	**16-Feb-2024**	09-Aug-2024	✓	**19-Feb-2024**	09-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC110_240212, 0990_QC111_240212, 0990_QC112_240212, 0990_SW016_240212	**12-Feb-2024**	**16-Feb-2024**	10-Aug-2024	✓	**19-Feb-2024**	10-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC310_240212, 0990_QC410_240212, 0990_QC510_240212	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**19-Feb-2024**	12-Aug-2024	✓

CERTIFICATE OF ANALYSIS

Work Order	: **ES2404747**	Page	: 1 of 13
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASMGMT_24	Date Samples Received	: 15-Feb-2024 08:30
Order number	: 60676801/3.03.02	Date Analysis Commenced	: 16-Feb-2024
C-O-C number	: 63694	Issue Date	: 19-Feb-2024 10:54
Sampler	: [redacted]		
Site	: Autosampler		
Quote number	: SY/139/19 V3		
No. of samples received	: 31		
No. of samples analysed	: 23		

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]		

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	0990_SW016_01_240209	0990_SW016_02_240209	0990_SW016_03_240210	0990_SW016_04_240210	0990_SW016_05_240210
				Sampling date / time	09-Feb-2024 20:51	09-Feb-2024 21:51	09-Feb-2024 22:51	09-Feb-2024 23:51	10-Feb-2024 00:51
					ES2404747-001	ES2404747-002	ES2404747-003	ES2404747-004	ES2404747-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.03**	**0.03**	**0.03**	**0.03**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.03**	**0.03**	**0.03**	**0.03**	**0.02**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.30**	**0.29**	**0.27**	**0.30**	**0.22**
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		**0.39**	**0.40**	**0.39**	**0.36**	**0.40**
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**	**0.03**	**0.03**	**0.03**	**0.03**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.04**	**0.04**	**0.04**	**0.04**	**0.03**
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**	**0.02**	**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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW016_01_240209	0990_SW016_02_240209	0990_SW016_03_240210	0990_SW016_04_240210	0990_SW016_05_240210
				Sampling date / time	09-Feb-2024 20:51	09-Feb-2024 21:51	09-Feb-2024 22:51	09-Feb-2024 23:51	10-Feb-2024 00:51
Compound	CAS Number	LOR	Unit		ES2404747-001	ES2404747-002	ES2404747-003	ES2404747-004	ES2404747-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**0.83**	**0.84**	**0.81**	**0.81**	**0.71**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.69**	**0.69**	**0.66**	**0.66**	**0.62**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.80**	**0.81**	**0.78**	**0.78**	**0.69**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.6**	**95.7**	**95.9**	**95.1**	**99.4**
13C8-PFOA	----	0.02	%		**101**	**100**	**98.3**	**98.6**	**95.6**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_SW016_06_240210	0990_SW016_07_240210	0990_SW016_08_240210	0990_SW016_09_240210	0990_SW016_10_240210
				Sampling date / time	10-Feb-2024 03:18	10-Feb-2024 05:36	10-Feb-2024 12:57	10-Feb-2024 13:57	10-Feb-2024 14:57
					ES2404747-006	ES2404747-007	ES2404747-008	ES2404747-009	ES2404747-010
					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		**0.09**	**0.06**	**0.08**	**0.10**	**0.10**
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		**0.24**	**0.16**	**0.18**	**0.20**	**0.23**
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW016_06_240210	0990_SW016_07_240210	0990_SW016_08_240210	0990_SW016_09_240210	0990_SW016_10_240210
				Sampling date / time	10-Feb-2024 03:18	10-Feb-2024 05:36	10-Feb-2024 12:57	10-Feb-2024 13:57	10-Feb-2024 14:57
Compound	CAS Number	LOR	Unit		ES2404747-006	ES2404747-007	ES2404747-008	ES2404747-009	ES2404747-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**0.33**	**0.22**	**0.26**	**0.30**	**0.35**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.33**	**0.22**	**0.26**	**0.30**	**0.33**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.33**	**0.22**	**0.26**	**0.30**	**0.35**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.1**	**96.9**	**100.0**	**93.3**	**95.4**
13C8-PFOA	----	0.02	%		**93.7**	**94.4**	**97.4**	**94.6**	**98.1**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_SW016_12_240210	0990_SW016_14_240210	0990_SW016_16_240210	0990_SW016_18_240211	0990_SW016_20_240211
				Sampling date / time	10-Feb-2024 16:57	10-Feb-2024 18:57	10-Feb-2024 20:58	10-Feb-2024 22:58	11-Feb-2024 01:21
					ES2404747-012	ES2404747-014	ES2404747-016	ES2404747-018	ES2404747-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.02**	**0.03**	**0.03**	**0.03**	**0.03**
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		**0.11**	**0.13**	**0.12**	**0.13**	**0.12**
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		**0.23**	**0.27**	**0.23**	**0.26**	**0.26**
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW016_12_240210	0990_SW016_14_240210	0990_SW016_16_240210	0990_SW016_18_240211	0990_SW016_20_240211
				Sampling date / time	10-Feb-2024 16:57	10-Feb-2024 18:57	10-Feb-2024 20:58	10-Feb-2024 22:58	11-Feb-2024 01:21
Compound	CAS Number	LOR	Unit		ES2404747-012	ES2404747-014	ES2404747-016	ES2404747-018	ES2404747-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**0.36**	**0.45**	**0.40**	**0.46**	**0.43**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.34**	**0.40**	**0.35**	**0.39**	**0.38**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.36**	**0.45**	**0.40**	**0.44**	**0.43**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.8**	**108**	**96.0**	**101**	**99.9**
13C8-PFOA	----	0.02	%		**100**	**113**	**108**	**107**	**108**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW016_21_240211	0990_QC110_240212	0990_QC111_240212	0990_QC112_240212	0990_QC310_240212
				Sampling date / time	11-Feb-2024 04:00	12-Feb-2024 17:33	12-Feb-2024 17:40	12-Feb-2024 17:40	14-Feb-2024 14:26
Compound	CAS Number	LOR	Unit		ES2404747-021	ES2404747-025	ES2404747-027	ES2404747-029	ES2404747-031
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.03**	**0.03**	**0.02**	**0.03**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.04**	<0.02	**0.02**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.14**	**0.28**	**0.11**	**0.14**	<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		**0.28**	**0.42**	**0.23**	**0.26**	<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	**0.03**	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.02**	**0.05**	**0.02**	**0.02**	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW016_21_240211	0990_QC110_240212	0990_QC111_240212	0990_QC112_240212	0990_QC310_240212
				Sampling date / time	11-Feb-2024 04:00	12-Feb-2024 17:33	12-Feb-2024 17:40	12-Feb-2024 17:40	14-Feb-2024 14:26
Compound	CAS Number	LOR	Unit		ES2404747-021	ES2404747-025	ES2404747-027	ES2404747-029	ES2404747-031
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**0.47**	**0.87**	**0.38**	**0.47**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.42**	**0.70**	**0.34**	**0.40**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.47**	**0.83**	**0.38**	**0.45**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.0**	**103**	**98.2**	**90.5**	**102**
13C8-PFOA	----	0.02	%		**109**	**109**	**105**	**106**	**102**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC410_240212	0990_QC510_240212	0990_SW016_240212	----	----
				Sampling date / time	14-Feb-2024 14:27	14-Feb-2024 14:27	12-Feb-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2404747-032	ES2404747-033	ES2404747-034	--------	--------
					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	**0.03**	----	----
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	**0.07**	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC410_240212	0990_QC510_240212	0990_SW016_240212	----	----
				Sampling date / time	14-Feb-2024 14:27	14-Feb-2024 14:27	12-Feb-2024 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2404747-032	ES2404747-033	ES2404747-034	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	<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	**0.10**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.10**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.10**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.2**	**99.3**	**90.6**	----	----
13C8-PFOA	----	0.02	%		**105**	**106**	**104**	----	----

Surrogate Control Limits

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

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) 0990_SW016_01_240209, 0990_SW016_02_240209, 0990_SW016_03_240210, 0990_SW016_04_240210	**09-Feb-2024**	**16-Feb-2024**	07-Aug-2024	✓	**19-Feb-2024**	07-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_05_240210, 0990_SW016_06_240210, 0990_SW016_07_240210, 0990_SW016_08_240210, 0990_SW016_09_240210, 0990_SW016_10_240210, 0990_SW016_12_240210, 0990_SW016_14_240210, 0990_SW016_16_240210, 0990_SW016_18_240211	**10-Feb-2024**	**16-Feb-2024**	08-Aug-2024	✓	**19-Feb-2024**	08-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_20_240211, 0990_SW016_21_240211	**11-Feb-2024**	**16-Feb-2024**	09-Aug-2024	✓	**19-Feb-2024**	09-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC110_240212, 0990_QC111_240212, 0990_QC112_240212, 0990_SW016_240212	**12-Feb-2024**	**16-Feb-2024**	10-Aug-2024	✓	**19-Feb-2024**	10-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC310_240212, 0990_QC410_240212, 0990_QC510_240212	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**19-Feb-2024**	12-Aug-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0990_SW016_01_240209, 0990_SW016_02_240209, 0990_SW016_03_240210, 0990_SW016_04_240210	**09-Feb-2024**	**16-Feb-2024**	07-Aug-2024	✓	**19-Feb-2024**	07-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_05_240210, 0990_SW016_06_240210, 0990_SW016_07_240210, 0990_SW016_08_240210, 0990_SW016_09_240210, 0990_SW016_10_240210, 0990_SW016_12_240210, 0990_SW016_14_240210, 0990_SW016_16_240210, 0990_SW016_18_240211	**10-Feb-2024**	**16-Feb-2024**	08-Aug-2024	✓	**19-Feb-2024**	08-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_SW016_20_240211, 0990_SW016_21_240211	**11-Feb-2024**	**16-Feb-2024**	09-Aug-2024	✓	**19-Feb-2024**	09-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC110_240212, 0990_QC111_240212, 0990_QC112_240212, 0990_SW016_240212	**12-Feb-2024**	**16-Feb-2024**	10-Aug-2024	✓	**19-Feb-2024**	10-Aug-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC310_240212, 0990_QC410_240212, 0990_QC510_240212	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**19-Feb-2024**	12-Aug-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	30	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	30	**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 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)
ES2401443-031	16-Jan-2024 11:03	0990_OTH129_240116	✓	✓
ES2401443-032	16-Jan-2024 11:57	0990_QC103_240116	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2401443-001	16-Jan-2024 08:18	0990_OTH118_240116	✓
ES2401443-002	15-Jan-2024 12:15	0990_OTH119_240115	✓
ES2401443-003	15-Jan-2024 12:05	0990_POT112_240115	✓
ES2401443-004	15-Jan-2024 11:55	0990_POT113_240115	✓
ES2401443-005	16-Jan-2024 08:45	0990_POT120_240116	✓
ES2401443-006	15-Jan-2024 11:25	0990_POT121_240115	✓
ES2401443-007	16-Jan-2024 07:52	0990_POT124_240116	✓
ES2401443-008	15-Jan-2024 12:21	0990_POT125_240115	✓
ES2401443-009	16-Jan-2024 08:32	0990_POT127_240116	✓
ES2401443-010	15-Jan-2024 11:50	0990_POT128_240115	✓
ES2401443-011	15-Jan-2024 11:32	0990_POT129_240115	✓
ES2401443-012	16-Jan-2024 08:56	0990_POT130_240116	✓
ES2401443-013	15-Jan-2024 16:39	0990_POT131_240115	✓
ES2401443-014	16-Jan-2024 08:08	0990_POT198_240116	✓
ES2401443-015	15-Jan-2024 12:29	0990_POT201_240115	✓
ES2401443-016	16-Jan-2024 10:06	0990_SW108_240116	✓
ES2401443-017	16-Jan-2024 10:17	0990_SW153_240116	✓
ES2401443-018	15-Jan-2024 11:33	0990_QC100_240115	✓
ES2401443-019	16-Jan-2024 08:19	0990_QC101_240116	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
ES2401443-020	16-Jan-2024 08:46	0990_QC102_240116	✓
ES2401443-024	15-Jan-2024 11:37	0990_QC300_240115	✓
ES2401443-025	16-Jan-2024 08:34	0990_QC301_240116	✓
ES2401443-026	15-Jan-2024 11:38	0990_QC400_240115	✓
ES2401443-027	16-Jan-2024 08:35	0990_QC401_240116	✓
ES2401443-028	15-Jan-2024 11:33	0990_QC500_240115	✓
ES2401443-029	16-Jan-2024 11:47	0990_OTH008_240116	✓
ES2401443-030	16-Jan-2024 11:02	0990_POT235_240116	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

QUALITY CONTROL REPORT

Work Order	: **ES2404747**	Page	: 1 of 5
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASMGMT_24	Date Samples Received	: 15-Feb-2024
Order number	: 60676801/3.03.02	Date Analysis Commenced	: 16-Feb-2024
C-O-C number	: 63694	Issue Date	: 19-Feb-2024
Sampler	: [redacted]		
Site	: Autosampler		
Quote number	: SY/139/19 V3		
No. of samples received	: 31		
No. of samples analysed	: 23		

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]		

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: 5604147)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	87.8	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	102	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	111	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	96.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	99.0	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5605487)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	93.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	110	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	100	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	116	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	90.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5604147)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	100	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	91.3	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	102	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	96.3	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	98.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	89.3	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	95.4	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	120	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5605487)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	99.4	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	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: 5605487) - continued								
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	100	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	100	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.7	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	111	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	99.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5604147)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	84.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	120	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	113	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	112	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5605487)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	98.9	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	93.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	103	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	97.0	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	105	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	116	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	108	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5604147)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	119	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	112	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	87.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	91.0	71.4	144

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: 5605487)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	88.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	90.6	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	97.1	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	78.2	71.4	144

Matrix Spike (MS) Report

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

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2404747**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASMGMT_24	Page	: 1 of 4
Order number	: 60676801	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: 63694	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Autosampler		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Feb-2024 08:30	Issue Date	: 15-Feb-2024
Client Requested Due Date	: 21-Feb-2024	Scheduled Reporting Date	: **21-Feb-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 12.9'C DRW 13.2'C SYD - Ice present
Receipt Detail	:	No. of samples received / analysed	: 30 / 30

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
- **QC Forward analysis will be conducted by NMI.**
- **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.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2404747-001	: 12-Feb-2024 16:53	: 0990_SW016_01_240212
ES2404747-002	: 12-Feb-2024 17:00	: 0990_SW016_02_240212
ES2404747-003	: 12-Feb-2024 17:00	: 0990_SW016_03_240212
ES2404747-004	: 12-Feb-2024 17:00	: 0990_SW016_04_240212
ES2404747-005	: 12-Feb-2024 17:06	: 0990_SW016_05_240212
ES2404747-006	: 12-Feb-2024 17:07	: 0990_SW016_06_240212
ES2404747-007	: 12-Feb-2024 17:07	: 0990_SW016_07_240212
ES2404747-008	: 12-Feb-2024 17:07	: 0990_SW016_08_240212
ES2404747-009	: 12-Feb-2024 17:08	: 0990_SW016_09_240212
ES2404747-010	: 12-Feb-2024 17:09	: 0990_SW016_10_240212
ES2404747-011	: 12-Feb-2024 17:09	: 0990_SW016_11_240212
ES2404747-012	: 12-Feb-2024 17:10	: 0990_SW016_12_240212
ES2404747-013	: 12-Feb-2024 17:10	: 0990_SW016_13_240212
ES2404747-014	: 12-Feb-2024 17:10	: 0990_SW016_14_240212
ES2404747-015	: 12-Feb-2024 17:11	: 0990_SW016_15_240212
ES2404747-016	: 12-Feb-2024 17:12	: 0990_SW016_16_240212
ES2404747-017	: 12-Feb-2024 17:13	: 0990_SW016_17_240212
ES2404747-018	: 12-Feb-2024 17:13	: 0990_SW016_18_240212
ES2404747-019	: 12-Feb-2024 17:15	: 0990_SW016_19_240212
ES2404747-020	: 12-Feb-2024 17:17	: 0990_SW016_20_240212
ES2404747-021	: 13-Feb-2024 09:46	: 0990_SW016_21_240212
ES2404747-022	: 12-Feb-2024 17:16	: 0990_SW016_22_240212
ES2404747-023	: 12-Feb-2024 17:24	: 0990_SW016_23_240212
ES2404747-024	: 12-Feb-2024 17:30	: 0990_SW016_24_240212

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)
ES2404747-001	12-Feb-2024 16:53	0990_SW016_01_240212	✓
ES2404747-002	12-Feb-2024 17:00	0990_SW016_02_240212	✓
ES2404747-003	12-Feb-2024 17:00	0990_SW016_03_240212	✓
ES2404747-004	12-Feb-2024 17:00	0990_SW016_04_240212	✓
ES2404747-005	12-Feb-2024 17:06	0990_SW016_05_240212	✓
ES2404747-006	12-Feb-2024 17:07	0990_SW016_06_240212	✓
ES2404747-007	12-Feb-2024 17:07	0990_SW016_07_240212	✓
ES2404747-008	12-Feb-2024 17:07	0990_SW016_08_240212	✓
ES2404747-009	12-Feb-2024 17:08	0990_SW016_09_240212	✓
ES2404747-010	12-Feb-2024 17:09	0990_SW016_10_240212	✓
ES2404747-011	12-Feb-2024 17:09	0990_SW016_11_240212	✓
ES2404747-012	12-Feb-2024 17:10	0990_SW016_12_240212	✓
ES2404747-013	12-Feb-2024 17:10	0990_SW016_13_240212	✓

			WATER - EP231X PFAS - Full Suite (28 analytes)
ES2404747-014	12-Feb-2024 17:10	0990_SW016_14_240212	✓
ES2404747-015	12-Feb-2024 17:11	0990_SW016_15_240212	✓
ES2404747-016	12-Feb-2024 17:12	0990_SW016_16_240212	✓
ES2404747-017	12-Feb-2024 17:13	0990_SW016_17_240212	✓
ES2404747-018	12-Feb-2024 17:13	0990_SW016_18_240212	✓
ES2404747-019	12-Feb-2024 17:15	0990_SW016_19_240212	✓
ES2404747-020	12-Feb-2024 17:17	0990_SW016_20_240212	✓
ES2404747-021	13-Feb-2024 09:46	0990_SW016_21_240212	✓
ES2404747-022	12-Feb-2024 17:16	0990_SW016_22_240212	✓
ES2404747-023	12-Feb-2024 17:24	0990_SW016_23_240212	✓
ES2404747-024	12-Feb-2024 17:30	0990_SW016_24_240212	✓
ES2404747-025	12-Feb-2024 17:33	0990_QC110_240212	✓
ES2404747-027	12-Feb-2024 17:40	0990_QC111_240212	✓
ES2404747-029	12-Feb-2024 17:40	0990_QC112_240212	✓
ES2404747-031	14-Feb-2024 14:26	0990_QC310_240212	✓
ES2404747-032	14-Feb-2024 14:27	0990_QC410_240212	✓
ES2404747-033	14-Feb-2024 14:27	0990_QC510_240212	✓

Proactive Holding Time Report

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

Requested Deliverables

CERTIFICATE OF ANALYSIS

Work Order	: **ES2404922**	Page	: 1 of 15
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	[redacted]	Contact	[redacted]
Address	[redacted]	Address	[redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Feb-2024 17:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 16-Feb-2024
C-O-C number	: 63700	Issue Date	: 21-Feb-2024 10:56
Sampler	: [redacted]		
Site	: Private Property Sampling		
Quote number	: SY/139/19 V3		
No. of samples received	: 26		
No. of samples analysed	: 26		

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]		

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	0990_OTH117_240213	0990_OTH118_240214	0990_OTH119_240212	0990_POT112_240213	0990_POT113_240213
				Sampling date / time	13-Feb-2024 08:57	14-Feb-2024 10:13	13-Feb-2024 13:00	13-Feb-2024 10:57	13-Feb-2024 11:08
					ES2404922-001	ES2404922-002	ES2404922-003	ES2404922-004	ES2404922-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.03**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.03**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.01**	<0.01	**0.04**	**0.04**	**0.15**
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	**0.02**	**0.08**	**0.03**	**0.21**
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	**0.06**
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	**0.01**
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH117_240213	0990_OTH118_240214	0990_OTH119_240212	0990_POT112_240213	0990_POT113_240213
				Sampling date / time	13-Feb-2024 08:57	14-Feb-2024 10:13	13-Feb-2024 13:00	13-Feb-2024 10:57	13-Feb-2024 11:08
Compound	CAS Number	LOR	Unit		ES2404922-001	ES2404922-002	ES2404922-003	ES2404922-004	ES2404922-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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**	**0.02**	**0.12**	**0.07**	**0.49**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	**0.02**	**0.12**	**0.07**	**0.36**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	**0.02**	**0.12**	**0.07**	**0.46**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**93.4**	**100**	**97.9**	**101**
13C8-PFOA	----	0.02	%		**102**	**102**	**108**	**104**	**107**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT114_240214	0990_POT120_240214	0990_POT121_240213	0990_POT124_240214	0990_POT125_240213
				Sampling date / time	14-Feb-2024 09:51	14-Feb-2024 10:37	13-Feb-2024 10:16	14-Feb-2024 09:17	13-Feb-2024 13:24
					ES2404922-006	ES2404922-007	ES2404922-008	ES2404922-009	ES2404922-010
					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	**0.02**	**0.02**	<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	**0.02**	**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	<0.1	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT114_240214	0990_POT120_240214	0990_POT121_240213	0990_POT124_240214	0990_POT125_240213
				Sampling date / time	14-Feb-2024 09:51	14-Feb-2024 10:37	13-Feb-2024 10:16	14-Feb-2024 09:17	13-Feb-2024 13:24
Compound	CAS Number	LOR	Unit		ES2404922-006	ES2404922-007	ES2404922-008	ES2404922-009	ES2404922-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.04**	**0.06**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.04**	**0.06**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.04**	**0.06**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.1**	**98.5**	**99.7**	**100**	**105**
13C8-PFOA	----	0.02	%		**105**	**108**	**105**	**107**	**109**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT127_240214	0990_POT128_240212	0990_POT129_240213	0990_POT130_240214	0990_POT131_240213
				Sampling date / time	14-Feb-2024 10:33	13-Feb-2024 12:06	13-Feb-2024 11:30	14-Feb-2024 09:59	13-Feb-2024 13:44
					ES2404922-011	ES2404922-012	ES2404922-013	ES2404922-014	ES2404922-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.01**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.03**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT127_240214	0990_POT128_240212	0990_POT129_240213	0990_POT130_240214	0990_POT131_240213
				Sampling date / time	14-Feb-2024 10:33	13-Feb-2024 12:06	13-Feb-2024 11:30	14-Feb-2024 09:59	13-Feb-2024 13:44
Compound	CAS Number	LOR	Unit		ES2404922-011	ES2404922-012	ES2404922-013	ES2404922-014	ES2404922-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.04**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**99.7**	**98.6**	**98.5**	**101**
13C8-PFOA	----	0.02	%		**106**	**107**	**105**	**102**	**106**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT198_240214	0990_POT201_240213	0990_QC130_240213	0990_QC131_240213	0990_QC230_240213
				Sampling date / time	14-Feb-2024 09:28	13-Feb-2024 09:35	13-Feb-2024 10:52	13-Feb-2024 13:11	13-Feb-2024 10:52
					ES2404922-016	ES2404922-017	ES2404922-018	ES2404922-019	ES2404922-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	**0.03**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.03**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.04**	**0.16**	**0.04**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.03**	**0.22**	**0.04**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.06**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT198_240214	0990_POT201_240213	0990_QC130_240213	0990_QC131_240213	0990_QC230_240213
				Sampling date / time	14-Feb-2024 09:28	13-Feb-2024 09:35	13-Feb-2024 10:52	13-Feb-2024 13:11	13-Feb-2024 10:52
Compound	CAS Number	LOR	Unit		ES2404922-016	ES2404922-017	ES2404922-018	ES2404922-019	ES2404922-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.07**	**0.51**	**0.08**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.07**	**0.38**	**0.08**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.07**	**0.48**	**0.08**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.7**	**104**	**97.3**	**99.3**	**100**
13C8-PFOA	----	0.02	%		**105**	**104**	**103**	**106**	**99.3**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC231_240213	0990_QC330_240213	0990_QC331_240214	0990_QC430_240213	0990_QC431_240214
				Sampling date / time	13-Feb-2024 13:11	14-Feb-2024 11:51	14-Feb-2024 11:51	14-Feb-2024 11:52	14-Feb-2024 11:52
Compound	CAS Number	LOR	Unit		ES2404922-021	ES2404922-022	ES2404922-023	ES2404922-024	ES2404922-025
					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		**0.14**	<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		**0.20**	<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		**0.05**	<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		**0.01**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC231_240213	0990_QC330_240213	0990_QC331_240214	0990_QC430_240213	0990_QC431_240214
				Sampling date / time	13-Feb-2024 13:11	14-Feb-2024 11:51	14-Feb-2024 11:51	14-Feb-2024 11:52	14-Feb-2024 11:52
Compound	CAS Number	LOR	Unit		ES2404922-021	ES2404922-022	ES2404922-023	ES2404922-024	ES2404922-025
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**0.44**	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.34**	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.42**	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**106**	**102**	**102**	**105**
13C8-PFOA	----	0.02	%		**100**	**101**	**99.9**	**103**	**101**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC530_240213	----	----	----	----
				Sampling date / time	14-Feb-2024 11:53	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2404922-026	--------	--------	--------	--------
					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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC530_240213	----	----	----	----
				Sampling date / time	14-Feb-2024 11:53	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2404922-026	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<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	%		**101**	----	----	----	----
13C8-PFOA	----	0.02	%		**106**	----	----	----	----

Surrogate Control Limits

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2404922**		
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Contact	: [redacted]
Address	: [redacted]	Address	: [redacted]
E-mail	: [redacted]	E-mail	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Facsimile	: ----	Facsimile	: [redacted]
Project	: NT_0990_PFASOMP_24	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: 63700	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Private Property Sampling		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Feb-2024 17:30	Issue Date	: 15-Feb-2024
Client Requested Due Date	: 21-Feb-2024	Scheduled Reporting Date	: **21-Feb-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.1'C, 19.4'C & 18.6'C
Receipt Detail	: BAG	No. of samples received / analysed	: 26 / 26

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)
ES2404922-001	13-Feb-2024 08:57	0990_OTH117_240213	✓
ES2404922-002	14-Feb-2024 10:13	0990_OTH118_240214	✓
ES2404922-003	13-Feb-2024 13:00	0990_OTH119_240212	✓
ES2404922-004	13-Feb-2024 10:57	0990_POT112_240213	✓
ES2404922-005	13-Feb-2024 11:08	0990_POT113_240213	✓
ES2404922-006	14-Feb-2024 09:51	0990_POT114_240214	✓
ES2404922-007	14-Feb-2024 10:37	0990_POT120_240214	✓
ES2404922-008	13-Feb-2024 10:16	0990_POT121_240213	✓
ES2404922-009	14-Feb-2024 09:17	0990_POT124_240214	✓
ES2404922-010	13-Feb-2024 13:24	0990_POT125_240213	✓
ES2404922-011	14-Feb-2024 10:33	0990_POT127_240214	✓
ES2404922-012	13-Feb-2024 12:06	0990_POT128_240212	✓
ES2404922-013	13-Feb-2024 11:30	0990_POT129_240213	✓
ES2404922-014	14-Feb-2024 09:59	0990_POT130_240214	✓
ES2404922-015	13-Feb-2024 13:44	0990_POT131_240213	✓
ES2404922-016	14-Feb-2024 09:28	0990_POT198_240214	✓
ES2404922-017	13-Feb-2024 09:35	0990_POT201_240213	✓
ES2404922-018	13-Feb-2024 10:52	0990_QC130_240213	✓
ES2404922-019	13-Feb-2024 13:11	0990_QC131_240213	✓
ES2404922-020	13-Feb-2024 10:52	0990_QC230_240213	✓
ES2404922-021	13-Feb-2024 13:11	0990_QC231_240213	✓
ES2404922-022	14-Feb-2024 11:51	0990_QC330_240213	✓
ES2404922-023	14-Feb-2024 11:51	0990_QC331_240214	✓
ES2404922-024	14-Feb-2024 11:52	0990_QC430_240213	✓
ES2404922-025	14-Feb-2024 11:52	0990_QC431_240214	✓
ES2404922-026	14-Feb-2024 11:53	0990_QC530_240213	✓

Proactive Holding Time Report

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

Requested Deliverables

A [redacted]

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2404922**	Page	: 1 of 6
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]	Telephone	: +[redacted]
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Feb-2024
Site	: Private Property Sampling	Issue Date	: 21-Feb-2024
Sampler	: [redacted]	No. of samples received	: 26
Order number	: 60612561/3.1	No. of samples analysed	: 26

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	ES2404973--007	Anonymous	**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
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	5.26	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	38	2.63	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)							
0990_OTH117_240213, 0990_OTH119_240212, 0990_POT112_240213, 0990_POT113_240213, 0990_POT121_240213, 0990_POT125_240213, 0990_POT128_240212, 0990_POT129_240213, 0990_POT131_240213, 0990_POT201_240213, 0990_QC130_240213, 0990_QC131_240213, 0990_QC230_240213, 0990_QC231_240213	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH118_240214, 0990_POT114_240214, 0990_POT120_240214, 0990_POT124_240214, 0990_POT127_240214, 0990_POT130_240214, 0990_POT198_240214, 0990_QC330_240213, 0990_QC331_240214, 0990_QC430_240213, 0990_QC431_240214, 0990_QC530_240213	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0990_OTH117_240213,	0990_OTH119_240212,	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
0990_POT112_240213,	0990_POT113_240213,							
0990_POT121_240213,	0990_POT125_240213,							
0990_POT128_240212,	0990_POT129_240213,							
0990_POT131_240213,	0990_POT201_240213,							
0990_QC130_240213,	0990_QC131_240213,							
0990_QC230_240213,	0990_QC231_240213							
HDPE (no PTFE) (EP231X)								
0990_OTH118_240214,	0990_POT114_240214,	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓
0990_POT120_240214,	0990_POT124_240214,							
0990_POT127_240214,	0990_POT130_240214,							
0990_POT198_240214,	0990_QC330_240213,							
0990_QC331_240214,	0990_QC430_240213,							
0990_QC431_240214,	0990_QC530_240213							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0990_OTH117_240213,	0990_OTH119_240212,	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
0990_POT112_240213,	0990_POT113_240213,							
0990_POT121_240213,	0990_POT125_240213,							
0990_POT128_240212,	0990_POT129_240213,							
0990_POT131_240213,	0990_POT201_240213,							
0990_QC130_240213,	0990_QC131_240213,							
0990_QC230_240213,	0990_QC231_240213							
HDPE (no PTFE) (EP231X)								
0990_OTH118_240214,	0990_POT114_240214,	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓
0990_POT120_240214,	0990_POT124_240214,							
0990_POT127_240214,	0990_POT130_240214,							
0990_POT198_240214,	0990_QC330_240213,							
0990_QC331_240214,	0990_QC430_240213,							
0990_QC431_240214,	0990_QC530_240213							

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)								
0990_OTH117_240213,	0990_OTH119_240212,	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
0990_POT112_240213,	0990_POT113_240213,							
0990_POT121_240213,	0990_POT125_240213,							
0990_POT128_240212,	0990_POT129_240213,							
0990_POT131_240213,	0990_POT201_240213,							
0990_QC130_240213,	0990_QC131_240213,							
0990_QC230_240213,	0990_QC231_240213							
HDPE (no PTFE) (EP231X)								
0990_OTH118_240214,	0990_POT114_240214,	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓
0990_POT120_240214,	0990_POT124_240214,							
0990_POT127_240214,	0990_POT130_240214,							
0990_POT198_240214,	0990_QC330_240213,							
0990_QC331_240214,	0990_QC430_240213,							
0990_QC431_240214,	0990_QC530_240213							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0990_OTH117_240213,	0990_OTH119_240212,	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
0990_POT112_240213,	0990_POT113_240213,							
0990_POT121_240213,	0990_POT125_240213,							
0990_POT128_240212,	0990_POT129_240213,							
0990_POT131_240213,	0990_POT201_240213,							
0990_QC130_240213,	0990_QC131_240213,							
0990_QC230_240213,	0990_QC231_240213							
HDPE (no PTFE) (EP231X)								
0990_OTH118_240214,	0990_POT114_240214,	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓
0990_POT120_240214,	0990_POT124_240214,							
0990_POT127_240214,	0990_POT130_240214,							
0990_POT198_240214,	0990_QC330_240213,							
0990_QC331_240214,	0990_QC430_240213,							
0990_QC431_240214,	0990_QC530_240213							

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	38	**5.26**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	38	**2.63**	**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.

QUALITY CONTROL REPORT

Work Order	: **ES2404922**	Page	: 1 of 8
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: [redacted]G	Contact	[redacted]
Address	: [redacted]	Address	: [redacted]
Telephone	: ----	Telephone	: [redacted]
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Feb-2024
Order number	: 60612561/3.1	Date Analysis Commenced	: 16-Feb-2024
C-O-C number	: 63700	Issue Date	: 21-Feb-2024
Sampler	: [redacted]		
Site	: Private Property Sampling		
Quote number	: SY/139/19 V3		
No. of samples received	: 26		
No. of samples analysed	: 26		

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]		

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: 5606449)									
ES2404973-004	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.61	0.61	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	5.58	5.75	3.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.28	0.28	0.0	0% - 50%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.10	0.10	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2404973-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.25	0.24	4.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	2.20	2.11	4.4	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	0.03	0.03	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: 5606449)									
ES2404973-004	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.07	0.07	0.0	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	0.15	0.15	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	0.03	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: 5606449) - continued									
ES2404973-004	Anonymous	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
ES2404973-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.09	0.08	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: 5606449)									
ES2404973-004	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
ES2404973-009	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

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: 5606449)									
ES2404973-004	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
ES2404973-009	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: 5606449)									
ES2404973-004	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	6.95	7.18	3.3	0% - 20%
ES2404973-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.70	2.61	3.4	0% - 20%

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

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

Sub-Matrix: **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: 5605775)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	91.8	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	100	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	94.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	96.4	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	89.0	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5606449)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	113	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	101	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	96.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5605775)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	90.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	108	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	112	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	108	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: 5606449)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	94.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	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: 5606449) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	108	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	112	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	111	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	114	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	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: 5605775)								
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	101	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	104	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	118	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	100	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5606449)								
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	123	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	108	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	99.0	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	110	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	100	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5605775)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	105	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	108	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	104	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	96.3	71.4	144

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: 5606449)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	104	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	116	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	126	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5606449)							
ES2404973-007	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	123	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	94.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	95.8	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	95.4	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	84.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5606449)							
ES2404973-007	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	95.1	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	101	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	105	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	103	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	111	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	106	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	103	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	113	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	97.9	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	112	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5606449)							
ES2404973-007	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	113	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	93.4	62.6	147

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: 5606449) - continued							
ES2404973-007	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	109	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.1	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	115	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5606449)							
ES2404973-007	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	85.8	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	96.3	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	113	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	112	71.4	144

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

NATA

REPORT OF ANALYSIS

Report No. RN1417993

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/240119/4
	[redacted]	**Quote No.**	: QT-02257
	[redacted]	**Order No.**	: 60612561/3_1
		Date Received	: 19-JAN-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_24		
Your Client Services Manager	[redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/001291	0990_QC203_240116	SLUDGE16/01/2024 01:28PM

Lab Reg No.		N24/001291				
Date Sampled		16-JAN-2024				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	mg/kg	<0.01				NR70
PFPeA (2706-90-3)	mg/kg	<0.005				NR70
PFHxA (307-24-4)	mg/kg	<0.005				NR70
PFHpA (375-85-9)	mg/kg	<0.005				NR70
PFOA (335-67-1)	mg/kg	<0.005				NR70
PFNA (375-95-1)	mg/kg	<0.005				NR70
PFDA (335-76-2)	mg/kg	<0.005				NR70
PFUdA (2058-94-8)	mg/kg	<0.005				NR70
PFDoA (307-55-1)	mg/kg	<0.005				NR70
PFTrDA (72629-94-8)	mg/kg	<0.005				NR70
PFTeDA (376-06-7)	mg/kg	<0.005				NR70
PFHxDA (67905-19-5)	mg/kg	<0.005				NR70
PFODA (16517-11-6)	mg/kg	<0.02				NR70
FOUEA (70887-84-2)	mg/kg	<0.01				NR70
PFBS (375-73-5)	mg/kg	<0.005				NR70
PFPeS (2706-91-4)	mg/kg	<0.005				NR70
PFHxS (355-46-4)	mg/kg	<0.005				NR70
PFHpS (375-92-8)	mg/kg	<0.005				NR70
PFOS (1763-23-1)	mg/kg	0.016				NR70
PFNS (68259-12-1)	mg/kg	<0.005				NR70
PFDS (335-77-3)	mg/kg	<0.005				NR70
PFOSA (754-91-6)	mg/kg	<0.005				NR70
N-MeFOSA (31506-32-8)	mg/kg	<0.005				NR70
N-EtFOSA (4151-50-2)	mg/kg	<0.005				NR70
N-MeFOSAA (2355-31-9)	mg/kg	<0.005				NR70
N-EtFOSAA(2991-50-6)	mg/kg	<0.005				NR70
N-MeFOSE (24448-09-7)	mg/kg	<0.01				NR70
N-EtFOSE (1691-99-2)	mg/kg	<0.01				NR70
4:2 FTS (757124-72-4)	mg/kg	<0.005				NR70
6:2 FTS (27619-97-2)	mg/kg	<0.005				NR70

REPORT OF ANALYSIS

Lab Reg No.		N24/001291				
Date Sampled		16-JAN-2024				
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
8:2 FTS (39108-34-4)	mg/kg	<0.005				NR70
10:2 FTS (120226-60-0)	mg/kg	<0.01				NR70
8:2 diPAP (678-41-1)	mg/kg	<0.01				NR70
PFBA (Surrogate Recovery)	%	118				NR70
PFPeA (Surrogate Recovery)	%	104				NR70
PFHxA (Surrogate Recovery)	%	112				NR70
PFHpA (Surrogate Recovery)	%	114				NR70
PFOA (Surrogate Recovery)	%	116				NR70
PFNA (Surrogate Recovery)	%	120				NR70
PFDA (Surrogate Recovery)	%	124				NR70
PFUdA (Surrogate Recovery)	%	118				NR70
PFDoA (Surrogate Recovery)	%	111				NR70
PFTeDA (Surrogate Recovery)	%	129				NR70
PFHxDA (Surrogate Recovery)	%	135				NR70
FOUEA (Surrogate Recovery)	%	87				NR70
PFBS (Surrogate Recovery)	%	116				NR70
PFHxS (Surrogate Recovery)	%	106				NR70
PFOS (Surrogate Recovery)	%	108				NR70
PFOSA (Surrogate Recovery)	%	111				NR70
N-MeFOSA (Surrogate Recovery)	%	125				NR70
N-EtFOSA (Surrogate Recovery)	%	138				NR70
N-MeFOSAA (Surrogate Recovery)	%	109				NR70
N-EtFOSAA (Surrogate Recovery)	%	111				NR70
N-MeFOSE (Surrogate Recovery)	%	143				NR70
N-EtFOSE (Surrogate Recovery)	%	113				NR70
4:2 FTS (Surrogate Recovery)	%	91				NR70
6:2 FTS (Surrogate Recovery)	%	90				NR70
8:2 FTS (Surrogate Recovery)	%	103				NR70
8:2 diPAP (Surrogate Recovery)	%	146				NR70
Dates						
Date extracted		23-JAN-2024				
Date analysed		25-JAN-2024				

N24/001291
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.

PFAS LORs raised if total solids value is below 20%.

REPORT OF ANALYSIS

LOR raised for FOUEA in sample N24/001291 due to analytical interferences

[redacted]

06-FEB-2024

Lab Reg No.		N24/001291				
Date Sampled		16-JAN-2024				
	Units					Method
Trace Elements						
Total Solids	%	3.4				NT2_49
Dates						
Date extracted		23-JAN-2024				
Date analysed		24-JAN-2024				

[redacted]

All results are expressed on a dry weight basis.

[redacted]

REPORT OF ANALYSIS

Report No. RN1417993

Client	: AECOM AUSTRALIA PTY LTD	**Job No.**	: AECO06/240119/4
	[redacted]	**Quote No.**	: QT-02257
	[redacted]	**Order No.**	: 60612561/3_1
		Date Received	: 19-JAN-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_24		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/001288	0990_QC200_240115	WATER 15/01/2024 01:05PM
N24/001289	0990_QC201_240116	WATER 16/01/2024 09:50AM
N24/001290	0990_QC202_240116	WATER 16/01/2024 10:16AM

Lab Reg No.			N24/001288	N24/001289	N24/001290		
Date Sampled			15-JAN-2024	16-JAN-2024	16-JAN-2024		
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	<0.05	<0.05	<0.05		NR70
PFPeA (2706-90-3)		ug/L	<0.02	<0.02	<0.02		NR70
PFHxA (307-24-4)		ug/L	0.082	<0.01	<0.01		NR70
PFHpA (375-85-9)		ug/L	<0.01	<0.01	<0.01		NR70
PFOA (335-67-1)		ug/L	<0.01	<0.01	<0.01		NR70
PFNA (375-95-1)		ug/L	<0.01	<0.01	<0.01		NR70
PFDA (335-76-2)		ug/L	<0.01	<0.01	<0.01		NR70
PFUdA (2058-94-8)		ug/L	<0.01	<0.01	<0.01		NR70
PFDoA (307-55-1)		ug/L	<0.01	<0.01	<0.01		NR70
PFTrDA (72629-94-8)		ug/L	<0.02	<0.02	<0.02		NR70
PFTeDA (376-06-7)		ug/L	<0.02	<0.02	<0.02		NR70
PFHxDA (67905-19-5)		ug/L	<0.02	<0.02	<0.02		NR70
PFODA (16517-11-6)		ug/L	<0.05	<0.05	<0.05		NR70
FOUEA (70887-84-2)		ug/L	<0.01	<0.01	<0.01		NR70
PFDS (335-77-3)		ug/L	<0.01	<0.01	<0.01		NR70
PFPeS (2706-91-4)		ug/L	0.044	<0.01	<0.01		NR70
PFHxS (355-46-4)		ug/L	0.24	<0.01	0.022		NR70
PFHpS (375-92-8)		ug/L	<0.01	<0.01	<0.01		NR70
PFOS (1763-23-1)		ug/L	0.17	<0.02	0.021		NR70
PFNS (68259-12-1)		ug/L	<0.01	<0.01	<0.01		NR70
PFBS (375-73-5)		ug/L	0.041	<0.01	<0.01		NR70
PFOSA (754-91-6)		ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSA (31506-32-8)		ug/L	<0.02	<0.02	<0.02		NR70
N-EtFOSA (4151-50-2)		ug/L	<0.02	<0.02	<0.02		NR70
N-MeFOSAA (2355-31-9)		ug/L	<0.01	<0.01	<0.01		NR70
N-EtFOSAA(2991-50-6)		ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSE (24448-09-7)		ug/L	<0.05	<0.05	<0.05		NR70
N-EtFOSE (1691-99-2)		ug/L	<0.05	<0.05	<0.05		NR70

REPORT OF ANALYSIS

Lab Reg No.			N24/001288	N24/001289	N24/001290		
Date Sampled			15-JAN-2024	16-JAN-2024	16-JAN-2024		
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
4:2 FTS (757124-72-4)		ug/L	<0.01	<0.01	<0.01		NR70
6:2 FTS (27619-97-2)		ug/L	<0.01	<0.01	<0.01		NR70
8:2 FTS (39108-34-4)		ug/L	<0.01	<0.01	<0.01		NR70
10:2 FTS (120226-60-0)		ug/L	<0.01	<0.01	<0.01		NR70
8:2 diPAP (678-41-1)		ug/L	<0.02	<0.02	<0.02		NR70
PFBA (Surrogate Recovery)		%	123	111	131		NR70
PFPeA (Surrogate Recovery)		%	122	100	126		NR70
PFHxA (Surrogate Recovery)		%	122	110	130		NR70
PFHpA (Surrogate Recovery)		%	128	109	130		NR70
PFOA (Surrogate Recovery)		%	122	109	133		NR70
PFNA (Surrogate Recovery)		%	124	106	120		NR70
PFDA (Surrogate Recovery)		%	135	106	127		NR70
PFUdA (Surrogate Recovery)		%	118	101	143		NR70
PFDoA (Surrogate Recovery)		%	115	97	116		NR70
PFTeDA (Surrogate Recovery)		%	119	103	110		NR70
PFHxDA (Surrogate Recovery)		%	141	126	141		NR70
FOUEA (Surrogate Recovery)		%	126	108	138		NR70
PFBS (Surrogate Recovery)		%	144	116	138		NR70
PFHxS (Surrogate Recovery)		%	136	121	128		NR70
PFOS (Surrogate Recovery)		%	132	110	139		NR70
PFOSA (Surrogate Recovery)		%	117	86	87		NR70
N-MeFOSA (Surrogate Recovery)		%	104	99	117		NR70
N-EtFOSA (Surrogate Recovery)		%	110	100	127		NR70
N-MeFOSAA (Surrogate Recovery)		%	108	81	106		NR70
N-EtFOSAA (Surrogate Recovery)		%	118	90	150		NR70
N-MeFOSE (Surrogate Recovery)		%	152	131	164		NR70
N-EtFOSE (Surrogate Recovery)		%	112	98	124		NR70
4:2 FTS (Surrogate Recovery)		%	113	102	113		NR70
6:2 FTS (Surrogate Recovery)		%	115	92	120		NR70
8:2 FTS (Surrogate Recovery)		%	122	95	108		NR70
8:2 diPAP (Surrogate Recovery)		%	155	111	134		NR70
Dates							
Date extracted			25-JAN-2024	25-JAN-2024	25-JAN-2024		
Date analysed			25-JAN-2024	25-JAN-2024	25-JAN-2024		

N24/001288
to
N24/001290

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.

Selected PFAS surrogate recoveries are biased due to matrix effects.ô
High PFAS surrogate recoveries accepted - results corrected for recovery.

Samples N24/001288 and N23/001290 were re-analysed as per client request.

[redacted]

NATA
WORLD RECOGNISED ACCREDITATION

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.

* Denotes the analyte or test method is not within our ISO/IEC 17025 scope of accreditation.
This Report supersedes reports: *RN1417399*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: [redacted]

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/240119/4 **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	123	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	107	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	112	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	114	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	111	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	113	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	113	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	104	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	91	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	90	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	105	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	112	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	112	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	105	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	107	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	108	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	104	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	106	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	99	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	118	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	77	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	96	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	101	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	112	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	114	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	84	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

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: AECOM AUSTRALIA PTY LTD

NMI QA Report No: AECO06/240119/4 **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	0.01	<0.01	NA	NA	NA	148	NA
PFPeA (2706-90-3)	NR70	0.005	<0.005	NA	NA	NA	126	NA
PFHxA (307-24-4)	NR70	0.005	<0.005	NA	NA	NA	119	NA
PFHpA (375-85-9)	NR70	0.005	<0.005	NA	NA	NA	118	NA
PFOA (335-67-1)	NR70	0.005	<0.005	NA	NA	NA	122	NA
PFNA (375-95-1)	NR70	0.005	<0.005	NA	NA	NA	125	NA
PFDA (335-76-2)	NR70	0.005	<0.005	NA	NA	NA	121	NA
PFUdA (2058-94-8)	NR70	0.005	<0.005	NA	NA	NA	114	NA
PFDoA (307-55-1)	NR70	0.005	<0.005	NA	NA	NA	121	NA
PFTrDA (72629-94-8)	NR70	0.005	<0.005	NA	NA	NA	117	NA
PFTeDA (376-06-7)	NR70	0.005	<0.005	NA	NA	NA	119	NA
PFHxDA (67905-19-5)	NR70	0.005	<0.005	NA	NA	NA	101	NA
PFODA (16517-11-6)	NR70	0.02	<0.02	NA	NA	NA	90	NA
FOUEA (70887-84-2)	NR70	0.005	<0.005	NA	NA	NA	93	NA
PFBS (375-73-5)	NR70	0.005	<0.005	NA	NA	NA	115	NA
PFPeS (2706-91-4)	NR70	0.005	<0.005	NA	NA	NA	119	NA
PFHxS (355-46-4)	NR70	0.005	<0.005	NA	NA	NA	123	NA
PFHpS (375-92-8)	NR70	0.005	<0.005	NA	NA	NA	115	NA
PFOS (1763-23-1)	NR70	0.005	<0.005	NA	NA	NA	119	NA
PFNS (68259-12-1)	NR70	0.005	<0.005	NA	NA	NA	127	NA
PFDS (335-77-3)	NR70	0.005	<0.005	NA	NA	NA	117	NA
PFOSA (754-91-6)	NR70	0.005	<0.005	NA	NA	NA	117	NA
N-MeFOSA (31506-32-8)	NR70	0.005	<0.005	NA	NA	NA	95	NA
N-EtFOSA (4151-50-2)	NR70	0.005	<0.005	NA	NA	NA	96	NA
N-MeFOSAA (2355-31-9)	NR70	0.005	<0.005	NA	NA	NA	118	NA
N-EtFOSAA(2991-50-6)	NR70	0.005	<0.005	NA	NA	NA	117	NA
N-MeFOSE (24448-09-7)	NR70	0.01	<0.01	NA	NA	NA	81	NA
N-EtFOSE (1691-99-2)	NR70	0.01	<0.01	NA	NA	NA	99	NA
4:2 FTS (757124-72-4)	NR70	0.005	<0.005	NA	NA	NA	118	NA
6:2 FTS (27619-97-2)	NR70	0.005	<0.005	NA	NA	NA	116	NA
8:2 FTS (39108-34-4)	NR70	0.005	<0.005	NA	NA	NA	115	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	103	NA
8:2 diPAP (678-41-1)	NR70	0.01	<0.01	NA	NA	NA	77	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:

Appendix G

Calibration Certificate

Sampling round: 2023-12 AECOM PMAP SW, PMAP GME, OMP private sampling **Location:** **Tindal** **Project number & name:** **60612561; 60676801**

PM: [redacted] **Field staff:** [redacted] **Client: DoD**

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		EC 1413 (µS/cm)		ORP (mV)		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
12/12/2023	D	25.0	4.01	-	7.01	-	100	102%	1425	-	231.4	1	[redacted]
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						

Notes:

AECOM

Sampling round: 202311-AECOM-GW Location: Katherine Project number & name: 60612561 OMP

PM: [redacted] Field staff: [redacted] Client: DoD.

Date	Unit #	Temp (°C)	pH 4		pH 7		DO (100%)		EC 1413 (µS/cm)		ORP (mV)		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
13.11.23	#D	25.0	4.02	—	7.00	—	100	102%	1420	—	236.2	—	[redacted]
14.11.23	#D	31.2	4.15	4.00	7.03	6.99	100	105%	1422	—	242.3	—	
15.11.23	#D	35.2	4.00	—	7.01	—	100	110%	1488	—	256.2	—	[redacted]
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						

Notes:

Sampling round: 2023-12 AECOM PMAP SW, PMAP GME, OMP private sampling **Location:** **Tindal** **Project number & name:** **60612561; 60676801**

PM: [redacted] **Field staff:** [redacted] **Client: DoD**

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		EC 1413 (µS/cm)		ORP (mV)		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
12/12/2023	D	25.0	4.01	-	7.01	-	100	102%	1425	-	231.4	1	[redacted]
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						

Notes:

AECOM

Sampling round: Wet Season Location: Tindal/Katherine Project number & name: 60612561/60676801

PM: [redacted] Field staff: [redacted] Client: DoD

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		EC ~~1413~~ (µS/cm)		ORP (mV)		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
15/01/24	#D	24.3	—	—	7.2	—	100	Send	to EcoEnv.	- broken	pH		[redacted]
15/01/24	#B	24.7	4.10	4.00	7.02	—	100	93.8	1507	—	262.3	—	
16.01.24	#B	25.1	4.01	—	7.01	—	100	98.2	1480	—	259.2	—	
17.01.24	#B	26.2	4.00	—	7.12	7.00	100	100.2	1448	—	253.8	—	
18.01.24	#B.	25.2	4.03	—	7.01	—	100	105.2	1440	—	250.2	—	
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						

← ±0.02 → ← 10 % →

Notes: YSI #D has faulty pH probe, to send to EcoEnviro.

Prepared for
Department of Defence Directorate of PFAS Remediation Environment and Engineering Branch
ABN: 68706814312

End of Wet Season Sampling Events Factual Report 2024

PFAS OMP - RAAF Base Tindal

04-Jul-2024
PFAS Ongoing Monitoring Plan

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End of Wet Season Sampling Events Factual Report 2024

PFAS OMP - RAAF Base Tindal

Client: Department of Defence Directorate of PFAS Remediation Environment and Engineering Branch

ABN: 68706814312

Prepared by

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

Quality Information

Document End of Wet Season Sampling Events Factual Report 2024

Date 04-Jul-2024

Originator [redacted]

Checker/s

Verifier/s

Revision History

Rev	Revision Date	Details	Approved	
			Name/Position	Signature
0	24-Jun-2024	Final	[redacted] Principal Environmental Scientist	[redacted]

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Abbreviations

Abbreviation	Term
AECOM	AECOM Australia Pty Ltd
ALS	Australian Laboratory Services Environmental Pty Ltd
ANZG	Australian and New Zealand Guidelines
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
DCMM	Defence Contamination Management Manual
Defence	Department of Defence
DO	Dissolved Oxygen
DoH	Department of Health
DQO	Data quality objectives
DQI	Data quality indicators
EC	Electrical Conductivity
HEPA	Heads of Environment Protection Authority
LOR	Limit of Reporting
MW	Monitoring Well
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NMI	National Measurement Institute
NSW	New South Wales
OMP	Ongoing Monitoring Plan
PFAS	Per- and poly-fluoroalkyl substances
PFHxS	Perfluorohexanesulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PMAP	PFAS Management Area Plan
QA/QC	Quality Assurance and Quality Control
RAAF	Royal Australian Air Force
RPD	Relative percentage difference
SAQP	Sampling and Analysis Quality Plan

Abbreviation	Term
SW	Surface Water

List of Units

Unit	Definition	Unit	Definition
^{o}C	degrees Celsius	mg	milligrams
cm	centimetre	mV	millivolts
L	litre	µg	micrograms
m	metre	µS	microsiemens
km	kilometre	g	grams
mAHD	metres Australian Height Datum	mbTOC	metres below top of casing

1.0 Introduction

1.1 Preamble

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Defence (Defence) to implement the per-and poly-fluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP) outlined in the PFAS Management Area Plan (PMAP) (Department of Defence, 2021a) at RAAF Base Tindal (the 'Base') in the Northern Territory. The location of the Base and Management Areas are shown in Appendix A - Figure 1.

The primary purpose of the OMP is to monitor changes to the PFAS impact in groundwater and surface water pathways associated with the key sources of PFAS as initially identified and assessed through the detailed site investigation phase of works (Coffey, 2018a) (Coffey, 2018b). Changes may result from the specific or cumulative impact of remediation or containment actions, existing transportation trends, and changes to hydrogeology or climatic conditions. These changes to PFAS contamination originating from Defence property can inform risk management decisions by Defence and Territory agencies to protect human health and the environment.

The monitoring program at the Base includes a regime of groundwater, surface water and biota sampling to evaluate these changes in the long term, to enable Defence to maintain an up-to-date understanding of temporal and spatial distribution, concentration, and transport of PFAS contaminants.

The most recent PFAS Ongoing Monitoring Plan approved in October 2021, that is covered within the PMAP (Department of Defence, 2021a), outlines the requirement to conduct biota sampling (once per year), groundwater sampling for private bores (monthly during the wet season and once during the dry season), annual or biannual monitoring of other groundwater locations on and off-Base, and surface water sampling (up to four times a year) as presented in Table 1 below.

Table 1 Sampling schedule with end of wet season sampling highlighted in green.

<table>
<tr><th rowspan="3">Sampling</th><th colspan="6">Wet Season</th><th colspan="6">Dry Season</th></tr>
<tr><th colspan="2">Early</th><th colspan="2">Mid</th><th colspan="2">Late</th><th colspan="2">Early</th><th colspan="2">Mid</th><th colspan="2">Late</th></tr>
<tr><th>Nov-23</th><th>Dec-23</th><th>Jan-24</th><th>Feb-24</th><th>Mar-24</th><th>Apr-24</th><th>May-24</th><th>Jun-24</th><th>Jul-24</th><th>Aug-24</th><th>Sep-24</th><th>Oct-24</th></tr>
<tr><td rowspan="3">Groundwater</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td>Monthly in Wet</td><td></td><td></td><td></td><td>Once in Dry</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Annual</td></tr>
<tr><td></td><td></td><td></td><td colspan="2">Biannual</td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Biannual</td></tr>
<tr><td rowspan="4">Surface Water</td><td></td><td></td><td>Quarterly</td><td></td><td></td><td>Quarterly</td><td></td><td></td><td>Quarterly</td><td></td><td></td><td>Quarterly</td></tr>
<tr><td></td><td colspan="2">Twice in Wet Season</td><td colspan="2">Twice in Wet Season</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td></td><td></td><td></td><td colspan="2">Biannual</td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Biannual</td></tr>
<tr><td>Aquatic Biota</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="2">Annual</td></tr>
</table>

1.2 Objectives

The purpose of this factual report is to summarise the scope of works and findings from the wet season sampling works conducted between February 2024 through to April 2024. These works included:

- ‘Monthly in the wet season’ groundwater sampling events in February, March and April 2024 in accordance with Revision 6 SAQP (AECOM, 2023a).
- ‘Biannual’ groundwater sampling in March 2024 in accordance with Revision 6 SAQP (AECOM, 2023a).
- ‘Twice in wet season’ and ‘biannual’ surface water sampling in March 2024 in accordance with Revision 6 SAQP (AECOM, 2023a).
- ‘Quarterly’ surface water sampling in April 2024 in accordance with the Sampling, Analysis and Quality Plan (SAQP) Revision 6 (AECOM, 2023a).

This report has been prepared in accordance with the Defence’s PFAS OMP Factual Report Guidance, (Department of Defence, 2021b).

An ongoing monitoring report is to be subsequently developed for the purpose of assessing the data collected during the discrete monitoring events completed over the 12-month period within which the works detailed herein fall and will include assessment of environmental variability and statistically significant trends in PFAS concentrations.

2.0 Scope of Work

2.1 Overarching Scope

The groundwater sampling and surface water sampling works described herein were completed in general accordance with SAQP Revision 6 (AECOM, 2023a). Prior to sampling, the plans were reviewed to ensure compliance with the following:

- The OMP (Department of Defence, 2021a)
- Heads of the Environment Protection Authority (HEPA), PFAS National Environmental Management Plan (NEMP 2.0) (HEPA, 2020)
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM, 1999)
- Defence Routine Environment Water Quality Monitoring Manual (Department of Defence, 2021c)
- AS/NZ 5667:1998 Water quality – Sampling (AS/NZS, 1998)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018).

The scope of works completed for the wet season sampling events under the SAQP Revision 6 (AECOM, 2023a) and included:

- Collection of groundwater samples from 17 private property locations in accordance with the ‘monthly in the wet’ sampling scope in February 2024.
- Collection of groundwater samples from 17 private property locations in accordance with the ‘monthly in the wet’ sampling scope in March 2024.
- Collection of samples from three ‘biannual’ groundwater locations in March 2024.
- Collection of samples from three ‘biannual’ surface water locations in March 2024.
- Collection of samples from six ‘twice in wet season’ surface water locations in March 2024.
- Collection of groundwater samples from 18 private property locations in April 2024 in accordance with the ‘monthly in the wet’ sampling scope.
- Collection of samples from two ‘quarterly’ surface water locations in April 2024.
- Collection of relevant quality assurance and quality control (QA/QC) samples in accordance with the relevant SAQP at the time of sampling.
- Analysis of samples included the 28 analyte PFAS-suite (full suite) at the standard limit of reporting (LOR).
- Data management of the OMP field and laboratory data in the Defence ESdat database.
- Preparation of this End of Wet Season Sampling Event Factual Report.

2.2 Monitoring Locations

The monitoring locations outlined within the relevant SAQP (AECOM, 2023a) for the surface water and groundwater wet season sampling events are tabulated below. Deviations from the planned sampling are highlighted in **bold** and detailed in Section 2.3 below.

Table 2 'Twice in wet season' surface water sampling locations – March 2024 (Figure 2 in Appendix A)

Area	Description	SAQP Locations
On-Base	Tindal Creek	SW016, SW350, SW021 (off Base)
	Runway drain	SW188, SW049
	Drain off Fire Station Handstand	SW140

Table 3 Biannual surface water sampling locations – March 2024 (Figure 2 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Katherine River	SW161, SW110, SW100

Table 4 Quarterly surface water sampling locations – April 2024 (Figure 2 in Appendix A)

Area	Description	SAQP Locations
Off-Base	**Katherine YMCA Pool**	**OTH008**
	Katherine Hot Springs	SW153
	Katherine River	SW108

Table 5 'Monthly in wet season' private property bore groundwater sampling locations – February 2024, March 2024 and April 2024 (Figure 3 in Appendix A)

Area	Description	SAQP Locations
Off-Base - Private	Shadforth Road	POT114, OTH117[1], POT120, POT130, POT124,
	Zimin Drive	POT112, POT113, POT121**,** POT125, **POT126**[1], POT127, POT128, POT129, OTH118, OTH119[1], POT131
	Tokmakoff Road	POT198[1], POT201

1 Not presented in Appendix A – Figure 3 for privacy reasons.

Table 6 Biannual groundwater sampling locations – March 2024 (Figure 3 in Appendix A)

Area	Description	SAQP Locations
Off-Base	Katherine Town Council	OTH114
	Arndt Road	**POT122**
	Emungalan	**OTH120**

2.3 Deviations from the SAQP

There were no deviations from the SAQP (AECOM, 2023a) for the biannual and 'twice in wet season' surface water sampling events, however there were deviations for the April 2024 quarterly surface water sampling event as outlined in Table 7 below.

The February 2024, March 2024 monthly in the wet season and March 2024 biannual groundwater events included some deviations from the SAQP (AECOM, 2023a), as outlined in Table 7 below.

Table 7 Deviations from the SAQP during groundwater and surface water sampling events.

SAQP	Deviation	Impact on OMP
'Monthly in the wet season' February and March 2024 Events		
Collection of 18 groundwater samples	Collection of 17 groundwater samples: • POT126 was not able to be sampled due to the property having been sold since the last sampling event voiding the access agreement.	Minor impact – historical results have all reported below the laboratory level of reporting at this location in previous monitoring events.
Biannual March 2024 Event		
Collection of three (3) groundwater samples	Collection of one (1) groundwater sample: • POT122 was not accessible due to the property gate being locked and the landowner unavailable for contact. • OTH120 was not operational.	POT122 Moderate impact – there is a property data gap for POT122 as data for this location is limited to historical results. As this property has not been sampled for several rounds (since January 2022), there is no current understanding of the PFAS concentrations at this location. Concentrations of PFAS in the bore water and water-use on this property are currently unknown, therefore potential health risks at this property are currently not understood; further, there are no nearby bores in the monitoring program. OTH120 Minor impact – historical results have all reported below the laboratory level of reporting at this location. It is unlikely the groundwater is currently utilised due to the bore being inoperable.
Quarterly April 2024 Event		
Collection of three (3) surface water samples	Collection of two (2) surface water samples: • OTH008 was unable to be sampled	No impact – the pool is closed whilst undergoing renovations, therefore eliminating potential risk during the closure period.

3.0 Sampling Methodology

The methodologies adopted for the groundwater and surface water were in general accordance with the applicable revisions of the SAQP (AECOM, 2023a) and noting that deviations are captured in Section 2.3 above.

Table 8 Surface water and groundwater sampling methodology

Item	Details
Groundwater and surface water methodology	
Surface water sampling	Surface water samples were collected from either mid-way through the water column or approximately 0.5 m below the surface, or mid-column for shallow sampling locations, with care taken to minimise collection of sediment or floating materials in the samples. At each location, laboratory supplied bottles were lowered into the water using a decontaminated aluminium sampling pole with the cap immediately applied once the container was full and retrieved from the water. Surface water sampling field results are presented in Appendix B – Table 3.
Groundwater sampling	All groundwater samples were obtained from extraction bores located on private properties. These samples were collected from existing taps on the headworks of the extraction bore. Samples were collected from the 'first-flush' from the tap. Groundwater sampling field results are presented in Appendix B – Table 1.
Water quality parameters	Water quality parameters were recorded ex-situ, post-sample collection, using a YSI Pro Water Quality Meter. Water quality measurements recorded consisted of the following: temperature (°C), electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (reported as redox), and pH. Observations of odour, colour, and clarity (low, moderate or high turbidity) of the samples collected were recorded at each location. Refer to Appendix C for sampling logs and Appendix D for calibration records of the water quality meter.
QA/QC samples	For water sampling, field QA/QC samples included intra-laboratory duplicate and inter-laboratory duplicate samples collected at a rate of 1 in 10 primary samples, rinsate samples collected at a rate of one per day where decontaminated non-dedicated equipment was used, field blank samples at a rate of one per sampling day and trip blank samples at a rate of one per cooler. Refer to Section 3.2 and for assessment of QA/QC sample data and full data validation report in Appendix E.
Sample analysis	In accordance with the Data Quality Objectives (DQO) outlined in the OMP (AECOM, 2023a), samples collected were tested for the extended PFAS suite at National Association of Testing Authorities' (NATA) accredited laboratories. Primary and intra- laboratory duplicate samples were submitted to the primary laboratory, Australian Laboratory Services Environmental (ALS) Sydney, New South Wales (NSW). Inter-laboratory samples were sent to secondary laboratory, National Measurement Institute (NMI) Sydney, NSW. Chain of Custody (COC) forms are presented in Appendix F and laboratory certificates are presented in Appendix G.

3.1 Adopted screening criteria

Screening criteria were selected on the basis of national guidance in the form of the PFAS National Environmental Management Plan, Defence estate and environmental strategies, and Defence PFAS-specific strategies and guidance. Guidance documents used to assess the dataset includes the following:

- Department of Health (DoH) Health Based Guidance Values for PFAS for use in site investigations in Australia (Department of Health, 2019)
- Heads of the Environment Protection Authority (HEPA), PFAS National Environmental Management Plan (PFAS NEMP 2.0) (HEPA, 2020)
- National Health and Medical Research Council (NHMRC), Guidance on PFAS in Recreational Water (NHMRC, 2019)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, Schedule B1, (ASC NEPM, 1999).

Table 9 Summary of adopted screening criteria for groundwater and surface water

Pathway	Compound	Criteria	Comment/reference
Human health receptors			
Drinking water - groundwater	PFOS + PFHxS	0.07 µg/L	These values are from the PFAS NEMP 2.0 (HEPA, 2020).
	PFOA	0.56 µg/L	
Recreational use – surface water	PFOS + PFHxS	2 µg/L	These values are from PFAS NEMP2.0 (HEPA, 2020).
	PFOA	10 µg/L	
Ecological receptors			
Freshwater - 99% species protection	PFOS	0.00023 µg/L	These values are from the PFAS NEMP 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.
	PFOA	19 µg/L	

3.2 Data quality objectives and data validation

The data quality objectives (DQOs) and data quality indicators (DQIs) adopted for these works are presented in the SAQP (AECOM, 2023a).

The data validation report is provided in Appendix E.

The analytical data can be used as a basis for interpretation, subject to the limitations outlined below.

February 2024 event:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L) but below the laboratory LOR (0.01 µg/L) for the following primary samples:
  - 0990_OTH117_240213
  - 0990_POT201_240213
  - 0990_POT128_240212
  - 0990_POT125_240213
  - 0990_POT131_240213
  - 0990_POT124_240214
  - 0990_POT198_240214

- 0990_POT114_240214
- 0990_POT130_240214
- 0990_POT127_240214

This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

March 2024 event:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for the following primary samples:
  - 0990_OTH117_240312
  - 0990_POT201_240312
  - 0990_POT128_240312
  - 0990_POT125_240312
  - 0990_POT131_240312
  - 0990_POT124_240313
  - 0990_POT198_240313
  - 0990_OTH118_240313
  - 0990_POT130_240313
  - 0990_POT127_240313

  This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

April 2024 event:

- The potential exists for PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for the following primary samples:
  - 0990_OTH117_240410
  - 0990_OTH118_240410
  - 0990_POT125_240410
  - 0990_POT126_240410
  - 0990_POT127_240410
  - 0990_POT128_240410
  - 0990_OTH131_240410
  - 0990_POT201_240410
  - 0990_POT114_240411
  - 0990_POT130_240411
  - 0990_POT198_240411

  This should be taken into consideration when interpreting PFOS results against guidelines where results are reported below the LOR.

Data validation procedures employed in the assessment of the field and laboratory QA/QC data are indicative that the overall quality of the analytical data produced is acceptably reliable for the purpose of this report. An examination of sampling analysis data compared to the data validation findings did not result in any results that required flagging for potential inaccuracies.

All data collected during this event has been reviewed and uploaded to the Defence ESdat database in accordance with Defence Contamination Management Manual (DCMM) (Department of Defence, 2021c) Annex L requirements.

4.0 Field observations and results

4.1 Groundwater

4.1.1 Groundwater field observations and measurements

Table 10 Groundwater observations and field measurements for February, March, and April 2024 sampling events

Compound	Criteria
Fieldwork dates	The three 'monthly in wet season' groundwater sampling events were completed on: • 13 to 14 February 2024 • 11 to 13 March 2024 • 10 to 11 April 2024 The biannual and 'twice in wet season' groundwater sampling event was completed on the 11 to 13 March 2024.
Access and sample collection	**February 2024 event:** One location for the 'monthly in the wet season' groundwater sampling event in February 2024 was not accessed and sampled: • No access agreement in place for POT126 (property sold since last monitoring event). **March 2024 event:** One location for the 'monthly in the wet season' groundwater sampling event in March 2024 was not accessed and sampled: • Access agreement for POT126 not received. Two locations for the 'Biannual' sampling event were not able to be accessed and sampled: • OTH120 – bore not operational. • POT122 – unable to be accessed. All locations for the 'twice in wet season' sampling event were accessed and sampled. **April 2024 event:** All locations for the 'monthly in the wet season' groundwater sampling event in April 2024 were accessed and sampled.
Water quality parameters	Water quality parameters were taken during sample collection using a YSI Pro Water Quality Meter. Stabilised readings are presented in Appendix B –Table 1. **February 2024 event ('monthly in the wet season'):** • DO ranged from 1.12 mg/L (POT112) to 5.85 mg/L (POT120) indicating hypoxic to oxygenated water conditions. • EC ranged from 12.2 µS/cm (OTH119) to 1163 µS/cm (OTH118) indicating freshwater conditions. • pH ranged from 6.78 (POT128) to 7.72 (POT121) indicating near neutral conditions. • Redox (corrected) ranged from 52.4mV (POT127) to 274.6 mV (POT125) indicating reducing to oxidising conditions. **March 2024 event ('monthly in the wet season'):** • DO ranged from 0.59 mg/L (POT112) to 5.18 mg/L (POT121) indicating hypoxic to oxygenated water conditions. • EC ranged from 617 µS/cm (POT127) to 1149 µS/cm (OTH118) indicating freshwater conditions. • pH ranged from 6.87 (POT198, OTH117) to 7.62 (POT121) indicating relatively

Compound	Criteria
	neutral conditions. • Redox (corrected) ranged from 149.8 mV (POT112) to 301.6 mV (POT120) indicating oxidising conditions. **March 2024 event ('Biannual):** • DO was measured at 1.66 mg/L (OTH114) indicating hypoxic conditions. • EC was measured at 828 µS/cm (OTH114) indicating freshwater conditions. • pH was measured at 6.78 (OTH114) indicating relatively neutral conditions. • Redox (corrected) was measured at 246.2 mV (OTH114) indicating oxidising conditions. **April 2024 event ('monthly in the wet season')** • DO ranged from 3.10 mg/L (POT118) to 5.63 mg/L (POT121) indicating oxygenated conditions. • EC ranged from 654 µS/cm (POT114) to 1,102 µS/cm (OTH118) indicating freshwater conditions. • pH ranged from 6.09 (POT112) to 7.41 (POT130) indicating slightly acidic to neutral conditions. • Redox (corrected) ranged from 276.8 mV (OTH117) to 334.7 mV (POT126) indicating oxidising conditions.

4.1.2 Groundwater analytical results

The PFAS groundwater analytical results from the February 2024, March 2024 and April 2024 sampling events are presented in Appendix B – Table 2.

During the February 'monthly in wet season' sampling event, eight of 17 primary groundwater samples (OTH117, OTH118, OTH119, POT112, POT113, POT120, POT121 and POT129) reported concentrations of Sum of PFHxS+PFOS above the laboratory LOR. Of these, three locations (POT112, POT113 and OTH119) exceeded the human health drinking water guideline value of 0.07 µ/L (HEPA, 2020), with OTH119 reporting a first-time detection and new exceedance at 0.12 µ/L for sum of PFHxS+PFOS. The same locations, with the exception of OTH117, reported above the adopted freshwater 99% species protection guideline for PFOS (HEPA, 2020). The potential exists for PFOS concentrations to be above the adopted freshwater 99% species protection guideline (HEPA, 2020) but below the laboratory LOR. Samples that meet these criteria are listed in Section 3.2One primary sample (POT113) reported a detection of PFOA above the LOR but below the selected PFOA human health and ecological guidelines.

During the March 2024 'monthly in the wet season' sampling event, eight of 17 primary groundwater samples (OTH117, OTH119, POT112, POT113, POT114, POT120, POT121 and POT129) reported concentrations of Sum of PFHxS+PFOS above the laboratory LOR, with POT113 also exceeding the human health guideline value (0.07 µ/L) for drinking water (HEPA, 2020). With the exception of OTH117, the aforementioned locations reported concentrations above the adopted freshwater 99% species protection guideline (HEPA, 2020) for PFOS. The potential exists for PFOS concentrations to be above the adopted freshwater 99% species protection guideline (HEPA, 2020) but below the laboratory LOR. Samples that meet these criteria are listed in Section 3.2. Sample location OTH119 reported a first-time detection of PFOA above the LOR but below the selected screening criteria.

During the March 2024 'Biannual' sampling event, the groundwater sample (OTH114) reported concentrations of Sum of PFHxS+PFOS above the laboratory LOR and human health guideline for drinking water (HEPA, 2020). OTH114 reported PFOS concentrations above the adopted freshwater 99% species protection guideline (HEPA, 2020). This sample reported below the laboratory LOR and associated adopted human health and ecological guidelines for PFOA. There were no first-time detections above the laboratory LOR or new exceedances of the screening criteria in the datasets.

During the April 2024 'monthly in the wet season' sampling event, seven of the 18 primary groundwater samples (OTH119, POT112, POT113, POT120, POT121, POT124, POT129) reported concentrations of Sum of PFHxS+PFOS above the laboratory LOR. POT113 and POT121 exceeded the human health

guideline value (0.07 µ/L) for drinking water (HEPA, 2020), with POT121 recording a new exceedance. The same seven locations reported above the adopted freshwater 99% species protection guideline (HEPA, 2020). The potential exists for PFOS concentrations to be above the adopted freshwater 99% species protection guideline (HEPA, 2020) but below the laboratory LOR. Samples that meet these criteria are listed in Section 3.2. All April 2024 results reported concentrations of PFOA below the LOR, with the exception of OTH119, however this concentration is below the adopted human health and ecological guidelines (HEPA, 2020).

4.2 Surface water

4.2.1 Surface water field observations and measurements

Table 11 Surface water observations and field measurements for March and April 2024 sampling events.

Compound	Criteria
Fieldwork dates	The 'twice in wet season' and biannual surface water sampling events were completed on the 13 March 2024. The quarterly surface water sampling event occurred on 10 April 2024
Access and sample collection	All surface water sampling locations were accessible and able to be sampled during the March 2024 sampling event. Location OTH008* was unavailable for sampling for the quarterly event in April 2024 due to temporary closure of the pool for renovations.
Field observations	**Twice in wet season and biannual event March 2024:** Tindal Creek and on-Base drains had low flow, and water was noted to be brown or colourless with no odour or sheen. SW350, located on-Base Tindal Creek, was noted to be brown with high flow, no odour or sheen. **Quarterly event April 2024:** Katherine River generally had moderate flows with low turbidity, no odour or sheen. The Katherine Hot Springs were noted to be colourless with low turbidity, no odour, and no sheen.
Surface water flow	The Katherine River level was recorded as being at approximately 1.415 m at the Katherine River Railway Bridge on 11 April 2024, recorded from Station G814001 (Northern Territory Department of Environment, Parks and Water Security, 2024).
Water quality parameters	Stabilised water quality parameter readings are presented in Appendix B - Table 3 and are summarised below per event. **Twice in wet season and biannual event March 2024:** • DO ranged from 2.87 mg/L (SW161) to 4.76 mg/L (SW016) indicating oxygenated water. • EC ranged from 20.5 µS/cm (SW110) to 343.3 µS/cm (SW188) indicating freshwater conditions. • pH ranged from 6.86 (SW110) to 8.17 (SW140) indicating neutral to slightly alkaline conditions. • Redox (corrected) ranged from 214.3 (SW049) to 252.7 mV (SW140) indicating oxidising conditions. **Quarterly event April 2024:** • DO ranged from 4.47 mg/L (SW153) to 6.30 mg/L (SW108) indicating oxygenated water. • EC ranged from 54.0 µS/cm (SW108) to 746 µS/cm (SW153) indicating freshwater conditions. • pH ranged from 6.99 (SW153) to 8.46 (SW108) indicating neutral to slightly alkaline conditions. • Redox (corrected) ranged from 279.5 mV (SW108) to 307.2 mV (SW153) indicating oxidising conditions.

*OTH008 (Katherine Town Pool) was not included in the surface water field summary as the water is artificially chemically controlled.

4.2.2 Surface water analytical results

The PFAS surface water analytical results from the 'twice in wet season' and biannual sampling event in March 2024, and the quarterly sampling event in April 2024 are presented in Appendix B – Table 4.

During the March 2024 'twice in wet season' sampling event, Sum of PFHxS+PFOS concentrations were detected above the laboratory LOR and exceeded the human health guideline value (0.07 µ/L) for

drinking water (HEPA, 2020) at all sampled locations, with the exception of on-Base location SW350. SW140 reported concentrations above the recreational water guidelines (HEPA, 2020).

Concentrations of PFOS in the March 2024 sampling event exceeded the laboratory LOR across all sample locations and therefore above the ecological freshwater species protection (99%) guideline (HEPA, 2020), with the exception of SW350. The potential exists for PFOS concentrations to be above the adopted freshwater 99% species protection guideline but below the laboratory LOR for samples at location SW350.

With the exception of on-base locations SW049, SW140 and SW188, concentrations of PFOA were found to be below the LOR and below the selected criteria across all sampled sites.

All locations sampled during the March biannual sampling event reported below the LOR for all PFAS analytes. The potential exists for PFOS in primary samples SW161, SW100, and SW110 to be above the adopted freshwater 99% species protection guideline but below the laboratory LOR.

All locations in the ‘twice in wet season’ and biannual March sampling event were below historical results. There were no first-time detections above the laboratory LOR or new exceedances of the screening criteria in the dataset.

During the April 2024 quarterly sampling event, samples from both locations SW108 and SW153 detected Sum of PFHxS+PFOS concentrations above the LOR, but below the human health guidelines. PFOS concentrations were also above the laboratory LOR and therefore above the ecological freshwater species protection (99%) guideline (HEPA, 2020). Concentrations of PFOA were below the LOR and selected criteria at all locations. There were no first-time detections above the laboratory LOR or new exceedances of the screening criteria in the dataset.

5.0 Summary and next sampling events

5.1 Summary of monitoring events

Sampling for the PFAS OMP during the start of wet season included:

- Sampling of 17 ‘monthly in wet season’ groundwater locations in February 2024.
- Sampling of 17 ‘monthly in wet season’ groundwater locations in March 2024.
- Sampling of one ‘biannual’ groundwater location in March 2024.
- Sampling of six ‘twice in wet season’ surface water locations in March 2024.
- Sampling of three ‘biannual’ surface water locations in March 2024.
- Sampling of 18 ‘monthly in wet season’ groundwater locations in April 2024.
- Sampling of two ‘quarterly’ surface water locations in April 2024.

Findings of the ‘end of wet season’ sampling events and recommended actions are summarised in Table 12 below.

Table 12 Summary of Sampling Event and Trigger Conditions

Item	Comment	Recommended Actions
Access to sampling locations	• All surface water locations for the ‘twice in wet season’ and ‘biannual’ sampling events in March 2024 and the quarterly sampling event in April 2024 were accessed and sampled, with the following exception: - OTH008 was unable to be sampled due to the pool being closed for renovations • All groundwater locations for the ‘monthly in wet season’ sampling event in February 2024 were accessed and sampled with the following exception: - POT126 was not able to be sampled due to the property having been sold, effectively voiding the access agreement. • All groundwater locations for the ‘monthly in wet season’ and ‘biannual’ sampling events in March 2024 were accessed and sampled with the following exceptions: - POT126 was not able to be sampled due to not having a signed access agreement received from the new owners. - OTH120 was not operational due to an electrical failure - POT122 was unable to be accessed as the property gate was locked and the property owner was unavailable during sampling. • All groundwater locations for the ‘monthly in wet season’ sampling event in April 2024 were accessed and sampled.	Access permission to sample POT126 has been completed and sampling recommenced in April 2024. Communicate with Kalano Community regarding the status of OTH120 and recommence sampling when the bore is repaired. Sampling location POT122 has not been accessible since January 2022 and future access appears unlikely. Identification of an alternative sampling location in this area would close this potential data gap. Recommence sampling of OTH008 under the OMP once the pool reopens. Continue monitoring in accordance with the SAQP and PMAP.

Item	Comment	Recommended Actions
First-time detection of PFHxS+PFOS or PFOA in groundwater and surface water	OTH119 recorded a first-time detection above the laboratory LOR for sum of PFOS+PFHxS in the February 2024 'monthly in the wet season' sampling event. This concentration is above the adopted human health guideline value (HEPA, 2020). OTH119 had a first-time detection above the laboratory LOR for PFOA in the March 2024 'monthly in wet season' sampling event. This concentration is below the adopted human health and ecological criteria (HEPA, 2020).	Continue monitoring in accordance with the SAQP and PMAP. Stakeholder has been contacted about results for their sampling for every sampling round taken place on the property.
New exceedance of NEMP 2.0 (HEPA, 2020) drinking water guideline values in groundwater and surface water	POT121 recorded a new exceedance of the drinking water guideline for sum of PFOS+PFHxS (0.08 µg/L) in the April 2024 'monthly in the wet season' sampling event. OTH119 recorded a new exceedance of the drinking water guideline for sum of PFOS+PFHxS (0.12 µg/L) in the February 2024 'monthly in the wet season' sampling event.	POT121: This location has previously had sum of PFOS+PFHxS concentrations at the drinking water guideline value previously, and the new maximum concentration does not change the overall risk profile for the site.
New exceedance of NEMP 2.0 (HEPA, 2020) recreational water guideline values in surface water	No new exceedances of the recreational guideline for PFOA or sum PFOS+PFHxS were reported in surface water.	Continue monitoring in accordance with the SAQP and PMAP.
New exceedance of NEMP 2.0 (HEPA, 2020) ecological water guideline value for surface water	No new exceedances of the ecological guideline PFOS and PFOA were reported in surface water, noting that the ecological guideline for PFOS is below the limit of reporting.	Continue monitoring in accordance with the SAQP and PMAP.
Sum of PFHxS+PFOS and/or sum of PFAS concentrations show an increasing trend in groundwater and surface water.	This will be evaluated in an ongoing monitoring interpretive report.	Continue monitoring in accordance with the SAQP and PMAP.
Sum of PFHxS+PFOS and/or sum of PFAS concentrations show a decreasing trend in groundwater and surface water.	This will be evaluated in an ongoing monitoring interpretive report.	Continue monitoring in accordance with the SAQP and PMAP.

5.2 Upcoming sampling events

The next surface water sampling event will be the third ‘quarterly event, which will occur in July 2024. The next groundwater sampling event will be the ‘once in dry’ groundwater sampling, which will occur in August 2024.

The next annual ongoing monitoring report will be completed in third quarter of 2024.

6.0 References

AECOM, 2023a. *Sampling Analysis and Quality Plan - RAAF Base Tindal, Revision 6, December 2023.* s.l.:s.n.

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HEPA, 2020. *PFAS National Environmental Management Plan,* s.l.: s.n.

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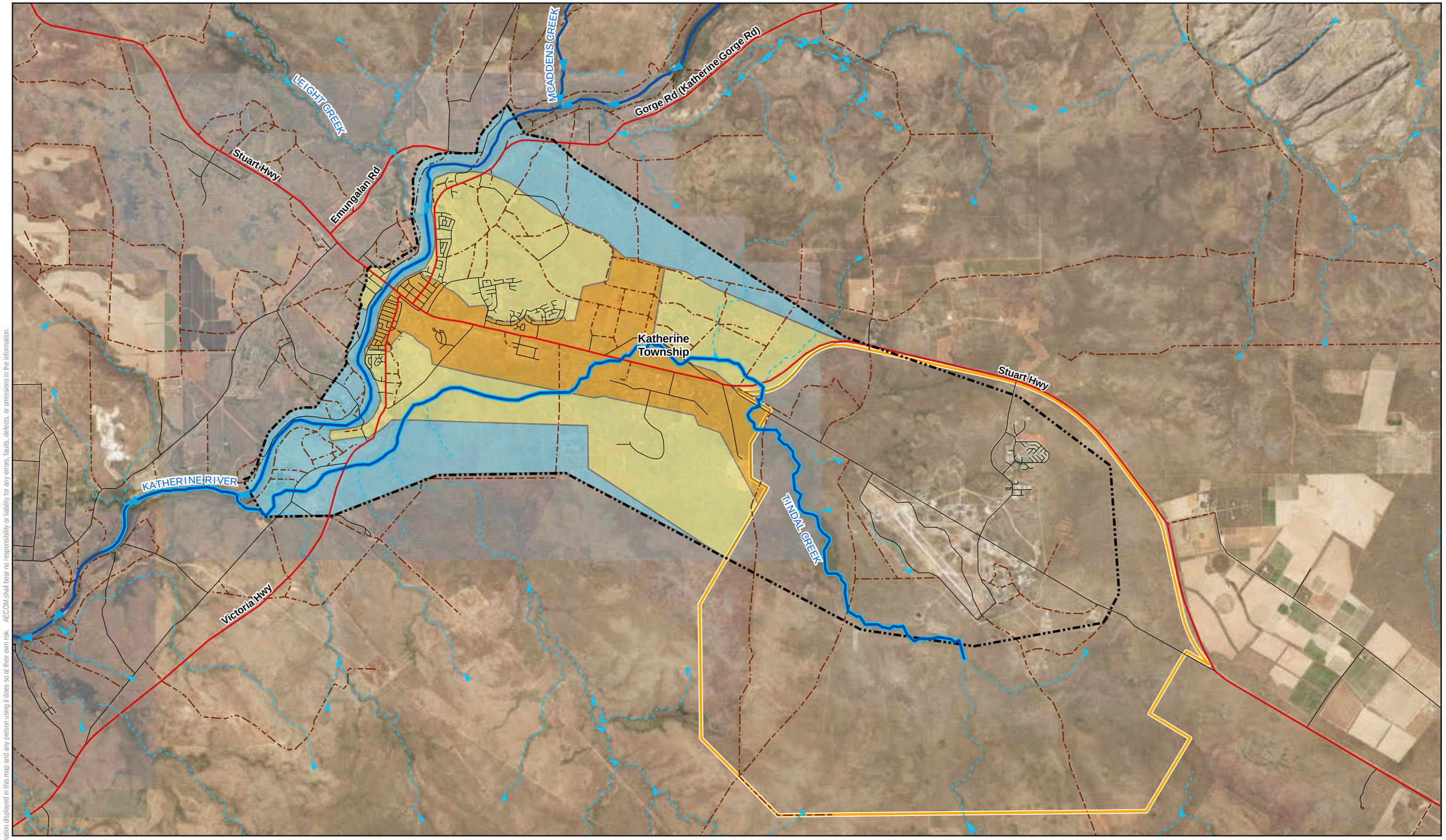
Appendix A

Figures



AECOM

N

DATUM GDA 1994, PROJECTION MGA ZONE 52

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Kilometres

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LEGEND

- RAAF Base Tindal
- Surface Water Management Area
- Groundwater Management Area
- Highway
- Road
- Track
- Katherine River
- Drainage
- Zone 1 Groundwater > Recreational Water Criteria
- Zone 2 Groundwater > Drinking Water Criteria
- Zone 5 Groundwater < Criteria

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ONGOING MONITORING PLAN
END OF WET SEASON SAMPLING FACTUAL REPORT 2024

PFAS Management Area

PROJECT ID 60612561
CREATED BY [redacted]
LAST MODIFIED 29 MAY 2024
VERSION: 1

Figure
1

A3 size

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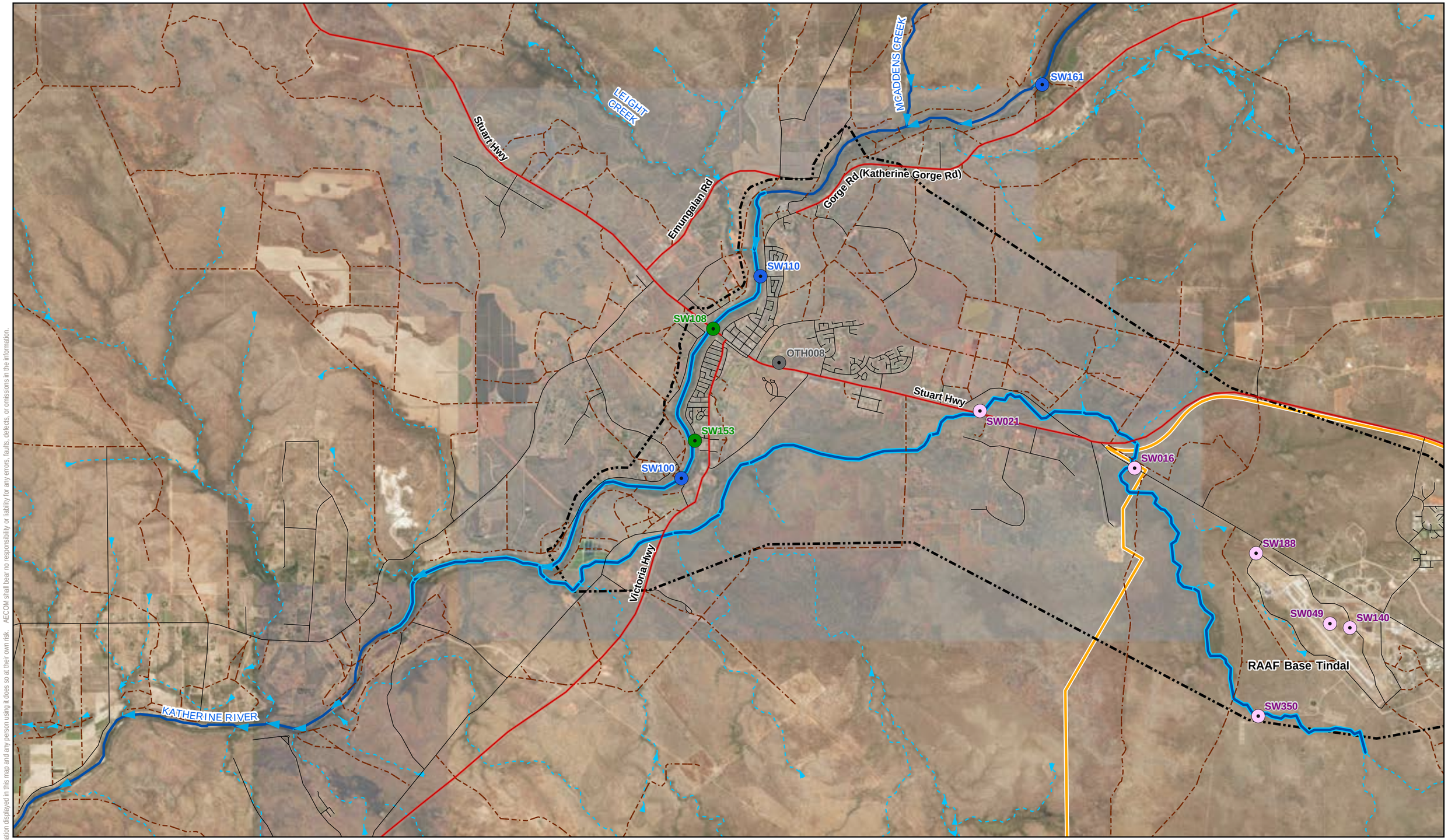

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AECOM

DATUM GDA 1994, PROJECTION MGA ZONE 53

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Kilometres

1:75,000 (when printed at A3)

LEGEND

- Quarterly Surface Water Locations
- Bi-annual Surface Water Locations
- Wet Season Surface Water Locations (Twice)
- Surface Water Management Area
- Groundwater Management Area
- Not Sampled
- RAAF Base
- Tindal Highway
- Road
- Track
- Katherine River
- Drainage

Note: OTH008 was not sampled in the April Quarterly surface water event due to the Katherine Town Pool being closed for renovations

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ONGOING MONITORING PLAN
END OF WET SEASON SAMPLING
FACTUAL
REPORT 2024

Surface Water Sampling Locations

PROJECT ID 60612561
CREATED BY [redacted]
LAST MODIFIED 29 MAY 2024
VERSION: 1

Figure 2

A3 size

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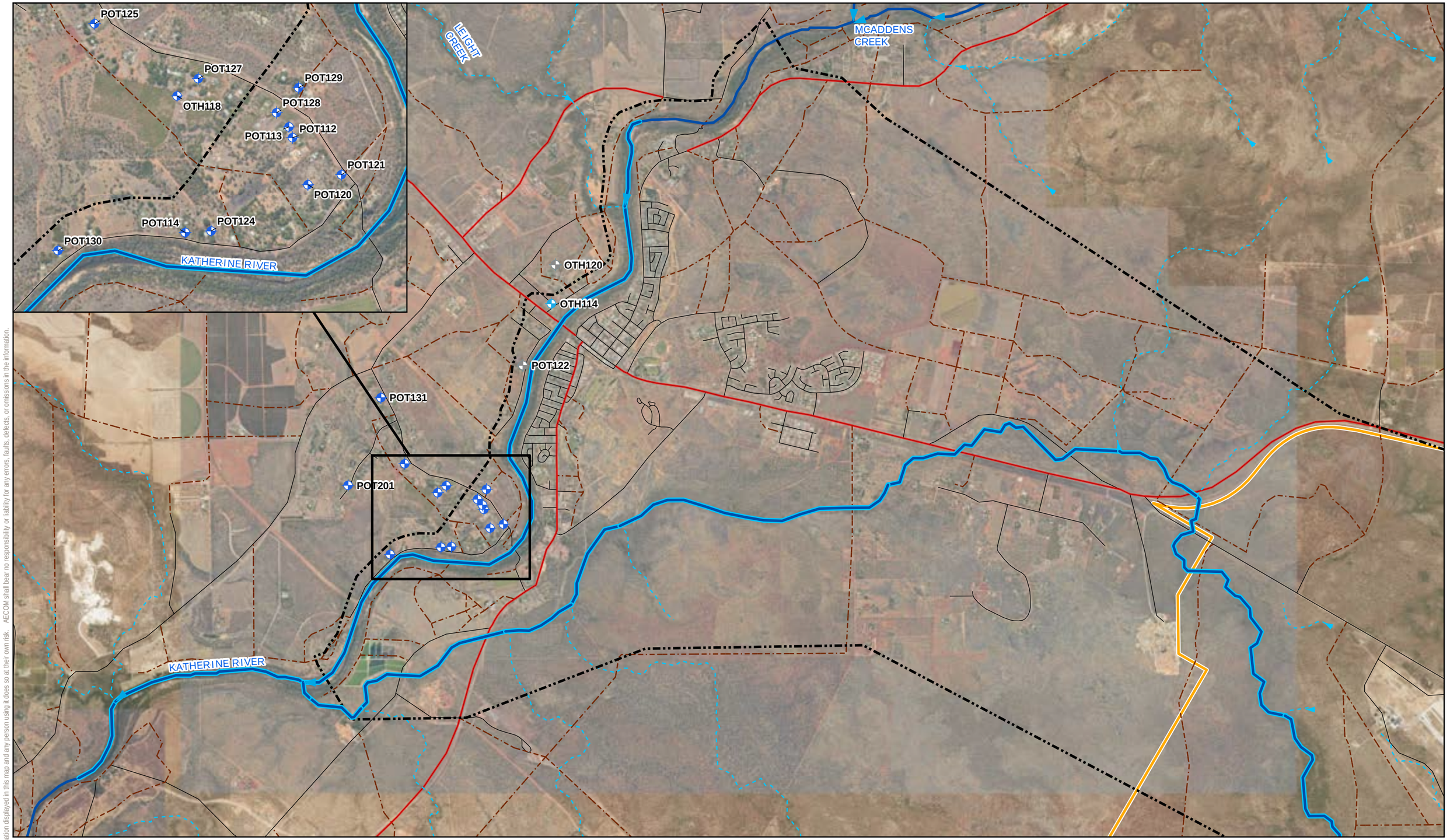

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AECOM

DATUM GDA 1994, PROJECTION MGA ZONE 53

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Kilometres

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LEGEND

- Private Property - Monthly in Wet Season Biannual
- Biannual Groundwater Monitoring Locations
- Not sampled in all events
- Surface Water Management Area
- Groundwater Management Area
- RAAF Base Tindal
- Highway
- Road
- Track
- Katherine River
- Drainage

Note:
- OTH117, OTH119, POT126 and POT198 are not shown on map for privacy reasons.
- OTH120 bore was inoperable, no sample collected.
- POT122 was unable to be accessed.

Data sources:

Base Data: Imagery (c) NTLIS

Department of Defence
RAAF BASE TINDAL
PFAS ON-GOING MONITORING PLAN
END OF WET SEASON SAMPLING
FACTUAL
REPORT 2024

Off-Base Groundwater Sampling Locations

PROJECT ID 60612561
CREATED BY [redacted]
LAST MODIFIED [redacted]29 MAY 2024
VERSION: 1

Figure
3

A3 size

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Appendix B

Tables

Appendix B - Table 1
Water Quality Parameters
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table 1 - Groundwater Water Quality Parameters

AECOM

Frequency	Location ID	Date	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Redox (corr) (mV)	Temp (^{o}C)	Turbditiy	Water Colour	Odour	Sheen	Sample Method
Monthly in the wet - February 2024	OTH117	13/02/2024	1.96	602	361.2	6.93	23.4	223.4	26.1	Low	Colourless	No odour	No sheen	Tap
	OTH118	14/02/2024	3.35	1163	697.8	6.91	-127.1	72.9	31.3	Low	Colourless	No odour	No sheen	Tap
	OTH119	13/02/2024	5.51	12.2	7.32	7.56	40.5	240.5	29.8	Low	Colourless	No odour	No sheen	Tap
	POT112	13/02/2024	1.12	747	448.2	7.03	43.7	243.7	29.7	Low	Colourless	No odour	No sheen	Tap
	POT113	13/02/2024	1.79	977	586.2	6.9	NM		30.8	Low	Colourless	No odour	No sheen	Tap
	POT114	14/02/2024	2.83	722	433.2	6.9	-131.8	68.2	28.8	Low	Colourless	No odour	No sheen	Tap
	POT120	14/02/2024	5.85	689	413.4	7.26	-116.2	83.8	25.9	Low	Colourless	No odour	No sheen	Tap
	POT121	13/02/2024	5.38	644	386.4	7.72	38.1	238.1	28.6	Low	Colourless	No odour	No sheen	Tap
	POT124	13/02/2024	2.12	733	439.8	6.94	-141.1	58.9	28.8	Low	Colourless	No odour	No sheen	Tap
	POT125	13/02/2024	3.96	683	409.8	7.17	74.6	274.6	31.6	Low	Colourless	No odour	No sheen	Tap
	POT127	14/02/2024	3.48	601	360.6	7.61	-147.6	52.4	25.6	Low	Colourless	No odour	No sheen	Tap
	POT128	13/02/2024	3.23	858	514.8	6.78	40.2	240.2	30.4	Low	Colourless	No odour	No sheen	Tap
	POT129	13/02/2024	3.7	670	402	7.12	65.6	265.6	28.3	Low	Colourless	No odour	No sheen	Tap
	POT130	14/02/2024	4.71	700	420	7.02	-99.2	100.8	26.9	Low	Colourless	No odour	No sheen	Tap
	POT131	13/02/2024	3.96	637	382.2	7.52	58.2	258.2	38.6	Low	Colourless	No odour	No sheen	Tap
	POT198	13/02/2024	2.45	697	418.2	6.83	-126.4	73.6	27.1	Low	Colourless	No odour	No sheen	Tap
	POT201	13/02/2024	4.36	692	415.2	7.04	30.3	230.3	29.8	Low	Colourless	No odour	No sheen	Tap
Monthly in the wet - March 2024	OTH117	12/03/2024	1.66	699	419.4	6.87	70.4	270.4	30.5	Low	Colourless	No odour	No sheen	Tap
	OTH118	13/03/2024	4.18	1149	689.4	7.01	64.7	264.7	31.7	Low	Colourless	No odour	No sheen	Tap
	OTH119	12/03/2024	3.55	1122	673.2	6.96	58.7	258.7	31.4	Low	Colourless	No odour	No sheen	Tap
	POT112	12/03/2024	0.59	953	571.8	7.25	-50.2	149.8	30.1	Low	Light Brown	Sulphur odour	No sheen	Tap
	POT113	12/03/2024	2.29	979	587.4	6.95	58.2	258.2	30.5	Low	Colourless	No odour	No sheen	Tap
	POT114	13/03/2024	3.24	722	433.2	6.9	63.5	263.5	30.1	Low	Colourless	No odour	No sheen	Tap
	POT120	13/03/2024	3.39	833	499.8	7.24	101.6	301.6	29.1	Low	Colourless	No odour	No sheen	Tap
	POT121	12/03/2024	5.18	680	408	7.62	74.8	274.8	27.7	Low	Colourless	No odour	No sheen	Tap
	POT124	13/03/2024	0.81	714	428.4	6.89	74	274	29.5	Low	Colourless	No odour	No sheen	Tap
	POT125	12/03/2024	1.63	755	453	6.92	50.2	250.2	31.9	Low	Colourless	No odour	No sheen	Tap
	POT127	13/03/2024	3.24	617	370.2	7.27	40.6	240.6	27.8	Low	Colourless	No odour	No sheen	Tap
	POT128	12/03/2024	3.22	919	551.4	6.94	65.8	265.8	30.6	Low	Colourless	No odour	No sheen	Tap
	POT129	12/03/2024	3.00	705	423	7.1	61.4	261.4	27.6	Low	Colourless	No odour	No sheen	Tap
	POT130	13/03/2024	4.13	692	415.2	7.02	61.1	261.1	26.7	Low	Colourless	No odour	No sheen	Tap
	POT131	12/03/2024	3.98	NM		7.57	50	250	27.9	Low	Colourless	No odour	No sheen	Tap
	POT198	13/03/2024	4.07	718	430.8	6.87	67.8	267.8	29.3	Low	Colourless	No odour	No sheen	Tap
	POT201	12/03/2024	2.39	726	435.6	7.02	76.6	276.6	29.8	Low	Colourless	No odour	No sheen	Tap
Biannual - March 2024	OTH114	12/03/2024	1.66	828	496.8	6.78	46.2	246.2	32.6		Light Brown	No odour	No sheen	Tap
	OTH120	Unable to collect												
	POT122													
Monthly in the wet - April 2024	OTH117	10/04/2024	4.81	776	465.6	6.75	76.8	276.8	28.1	Low	Colourless	No odour	No sheen	Tap
	OTH118	10/04/2024	3.10	1102	661.2	7.13	125.8	325.8	42.7	Low	Colourless	No odour	No sheen	Tap
	OTH119	10/04/2024	5.43	1073	643.8	6.99	131.8	331.8	29.9	Low	Colourless	No odour	No sheen	Tap
	POT112	10/04/2024	4.43	841	504.6	6.09	124.4	324.4	27.7	Low	Colourless	No odour	No sheen	Tap
	POT113	10/04/2024	4.40	793	475.8	6.94	133	333	29.2	Low	Colourless	No odour	No sheen	Tap
	POT114	11/04/2024	4.87	654	392.4	6.79	106.8	306.8	25.1	Low	Colourless	No odour	No sheen	Tap
	POT120	10/04/2024	5.51	695	417	6.94	124.5	324.5	30	Low	Colourless	No odour	No sheen	Tap
	POT121	10/04/2024	5.63	704	422.4	7.17	107.6	307.6	24.5	Low	Colourless	No odour	No sheen	Tap
	POT124	11/04/2024	4.48	748	448.8	6.69	85.9	285.9	28	Low	Colourless	No odour	No sheen	Tap
	POT125	11/04/2024	3.87	709	425.4	6.69	131	331	30.7	Low	Colourless	No odour	No sheen	Tap
	POT126	10/04/2024	4.23	728	436.8	6.86	134.7	334.7	31.2	Low	Colourless	No odour	No sheen	Tap
	POT127	10/04/2024	4.26	733	439.8	7.09	122.4	322.4	30.9	Low	Colourless	No odour	No sheen	Tap
	POT128	10/04/2024	4.25	756	453.6	6.95	125.8	325.8	30.4	Low	Colourless	No odour	No sheen	Tap
	POT129	10/04/2024	5.55	703	421.8	7.13	119.5	319.5	26.5	Low	White	No odour	No sheen	Tap
	POT130	11/04/2024	5.29	669	401.4	7.41	115.6	315.6	28.5	Low	Colourless	No odour	No sheen	Tap
	POT131	10/04/2024	3.66	808	484.8	7.17	118.8	318.8	45.9	Low	Colourless	No odour	No sheen	Tap
	POT198	11/04/2024	5.61	656	393.6	6.72	101.3	301.3	22.5	Low	Colourless	No odour	No sheen	Tap
	POT201	10/04/2024	4.99	659	395.4	6.8	78.9	278.9	23.7	Low	Colourless	No odour	No sheen	Tap

Notes:
mg/L: milligram per Litre
µS/cm: microsiemens per centimetre
mV: millivolts
^{o}C: degrees celcius
Corrected redox = redox + 200
NM - Not measured - eletronic data collection error

Table 2 - Groundwater Analytical Results

AECOM

	Location Code	Sampled Date	Field ID	Lab Report	Sample Type	PFAS Full Suite																													
						10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS	Sum of PFHxS and PFOS	Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluorohexane sulfonic acid (PFHxS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.02	0.01	0.05	0.02	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
	PFAS NEMP 2020 Drinking Water																															**0.07**		**0.56**	
	PFAS NEMP 2020 Freshwater 99%																																0.00023*	19	
	PFAS NEMP 2020 Recreational Water																															2		10	
February - Monthly in the Wet	OTH117	13/02/2024	0990_OTH117_240213	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01	<0.01*	<0.01	0.01
	POT201	13/02/2024	0990_POT201_240213	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT121	13/02/2024	0990_POT121_240213	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06	0.04	<0.01	0.02
	POT112	13/02/2024	0990_QC130_240213	ES2404922	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	**0.07**	0.03	<0.01	0.04
	POT112	13/02/2024	0990_QC230_240213	RN1420358	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	0.03	0.027	<0.02*	<0.01	0.027
	POT112	13/02/2024	0990_POT112_240213	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	**0.07**	0.03	<0.01	0.04
	POT113	13/02/2024	0990_POT113_240213	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	0.03	<0.02	<0.05	<0.02	<0.02	0.49	**0.36**	0.21	0.01	0.15
	POT129	13/02/2024	0990_POT129_240213	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.03	<0.01	0.01
	POT128	13/02/2024	0990_POT128_240212	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH119	13/02/2024	0990_OTH119_240212	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.12	**0.12**	0.08	<0.01	0.04
	POT113	13/02/2024	0990_QC131_240213	ES2404922	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	0.03	<0.02	<0.05	<0.02	<0.02	0.51	**0.38**	0.22	0.01	0.16
	POT113	13/02/2024	0990_QC231_240213	RN1420358	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	0.013	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.023	<0.01	<0.01	0.012	<0.02	<0.02	<0.02	<0.01	0.27	**0.22**	0.13	<0.01	0.09
	POT125	13/02/2024	0990_POT125_240213	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT131	13/02/2024	0990_POT131_240213	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT124	14/02/2024	0990_POT124_240214	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT198	14/02/2024	0990_POT198_240214	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT114	14/02/2024	0990_POT114_240214	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT130	14/02/2024	0990_POT130_240214	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	14/02/2024	0990_OTH118_240214	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
	POT127	14/02/2024	0990_POT127_240214	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT120	14/02/2024	0990_POT120_240214	ES2404922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
March - Monthly in the Wet	OTH117	12/03/2024	0990_OTH117_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01	<0.01*	<0.01	<0.01
	POT201	12/03/2024	0990_POT201_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT121	12/03/2024	0990_POT121_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03	0.02	<0.01	0.01
	POT112	12/03/2024	0990_POT112_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05	0.02	<0.01	0.03
	POT113	12/03/2024	0990_POT113_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.25	**0.23**	0.14	<0.01	0.09
	POT128	12/03/2024	0990_POT128_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT129	12/03/2024	0990_POT129_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
	POT131	12/03/2024	0990_POT131_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT125	12/03/2024	0990_POT125_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH119	12/03/2024	0990_OTH119_240312	ES2408294-AB	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.01	0.01	0.01	<0.01
	OTH119	12/03/2024	0990_QC101_240312	ES2408294-AA	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.02	0.02	0.01	<0.01
	OTH119	12/03/2024	0990_QC201_240312	RN1423430	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT124	13/03/2024	0990_POT124_240313	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT198	13/03/2024	0990_POT198_240313	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT114	13/03/2024	0990_POT114_240313	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
	POT130	13/03/2024	0990_POT130_240313	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	13/03/2024	0990_OTH118_240313	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT127	13/03/2024	0990_POT127_240313	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT120	13/03/2024	0990_POT120_240313	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	0.02	<0.01	0.02
March - Biannual	OTH114	12/03/2024	0990_OTH114_240312	ES2408294-AA	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.23	**0.23**	0.14	<0.01	0.09
April - Monthly in the Wet	OTH117	10/04/2024	0990_OTH117_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH118	10/04/2024	0990_OTH118_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	OTH119	10/04/2024	0990_OTH119_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.03	0.03	0.02	<0.01
	OTH119	10/04/2024	0990_QC100_240410	ES2412006	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.02	0.02	0.03	<0.01
	OTH119	10/04/2024	0990_QC200_240410	RN1426300	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02*	0.022	<0.01
	POT112	10/04/2024	0990_POT112_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
	POT113	10/04/2024	0990_POT113_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	**0.11**	0.07	<0.01	0.04
	POT120	10/04/2024	0990_POT120_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05	0.03	<0.01	0.02
	POT121	10/04/2024	0990_POT121_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	**0.08**	0.05	<0.01	0.03
	POT125	10/04/2024	0990_POT125_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT126	10/04/2024	0990_POT126_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT127	10/04/2024	0990_POT127_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT128	10/04/2024	0990_POT128_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT129	10/04/2024	0990_POT129_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01	0.01	<0.01	<0.01
	POT131	10/04/2024	0990_POT131_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT201	10/04/2024	0990_POT201_240410	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT114	11/04/2024	0990_POT114_240411	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT124	11/04/2024	0990_POT124_240411	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02	0.02	<0.01	<0.01
	POT130	11/04/2024	0990_POT130_240411	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	POT198	11/04/2024	0990_POT198_240411	ES2412006	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01

Notes:
µg/L: micrograms per litre
LOR: limit of reporting
* LOR is above guideline value
Denotes first time detection above LOR for Sum of PFHxS+PFOS or PFOA
Denotes new exceedance of human health screening criteria
Denotes a first time detection above LOR (for Sum of PFHxS+PFOS or PFOA) as well as a new exceedance of human health screening criteria

Table 3 - Surface Water Quality Parameters

Frequency	Location ID	Date	DO (mg/L)	EC (µS/cm)	TDS (mg/L)	pH	Redox (mV)	Redox (corr) (mV)	Temp (°C)	Turbidity	Flow	Water Colour	Odour	Sheen	Sample Method
Twice in Wet Season	SW016	12/03/2024	4.76	178.2	106.9	7.74	42.5	242.5	27.8	High	Moderate	Brown	No odour	No sheen	Grab
	SW021	12/03/2024	4.45	207.3	124.4	7.69	17.3	217.3	31.0	High	moderate	Brown	No odour	No sheen	Grab
	SW049	12/03/2024	3.93	124.6	74.8	8.10	14.3	214.3	35.1	High	low	Brown	No odour	No sheen	Grab
	SW140	11/03/2024	3.00	42.8	25.7	8.17	52.7	252.7	31.4	Low	low	Colourless	No odour	No sheen	Grab
	SW188	12/03/2024	3.67	343.3	206.0	7.70	35.4	235.4	33.9	High	low	Brown	No odour	No sheen	Grab
	SW350	12/03/2024	4.07	84.7	50.8	7.53	19.8	219.8	30.9	Moderate	high	Brown	No odour	No sheen	Grab
Biannual	SW100	12/03/2024	3.73	29.6	17.8	8.00	28.8	228.8	29.5	High	Moderate	Light brown	No odour	No sheen	Grab
	SW110	11/03/2024	3.92	20.5	12.3	6.86	30.3	230.3	29.8		Moderate	Brown	No odour	No sheen	Grab
	SW161	11/03/2024	2.87	37.7	22.6	6.92	33.1	233.1	30.5	Moderate	high	Brown	No odour	No sheen	Grab
Quarterly	OTH008	NM - closed for renovation													
	SW108	10/04/2024	6.30	54.0	32.4	8.46	79.5	279.5	28.1	Low	Moderate	Pale Brown	No odour	No sheen	Grab
	SW153	10/04/2024	4.47	746.00	447.6	6.99	107.20	307.20	30.10	Low	Low	Colourless	No odour	No sheen	Grab

Notes:
NM: not measured - unable to access
mg/L: milligram per Litre
µS/cm: microsiemens per centimetre
mV: millivolts
°C: degrees celcius
Corrected redox = redox + 200

Appendix B- Table 4
Surface Water Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence- RAAF Base Tindal

Table 4 - Surface Water Analytical Results

	Location Code	Sampled Date	Field ID	Lab Report	Sample Type	PFAS Full Suite																													
						10:2 Fluorotelomer sulfonic acid (10:2 FTS)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Sum of PFAS	Sum of PFHxS and PFOS	Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluorohexane sulfonic acid (PFHxS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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	0.02	0.01	0.05	0.02	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																																**0.07**		**0.56**	
PFAS NEMP 2020 Freshwater 99%																																	0.00023*	*19*	
PFAS NEMP 2020 Recreational Water																																2		10	
March - Twice in wet season	SW140	11/03/2024	0990_SW140_240311	ES2408294-AA	Normal	<0.05	<0.05	<0.05	0.29	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.11	0.2	<0.02	0.04	0.07	0.11	0.1	0.47	0.03	<0.02	0.11	0.11	<0.05	<0.02	0.06	5.81	**3.95**	*3.07*	0.16	0.88
	SW016	12/03/2024	0990_SW016_240312	ES2408294-AA	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	**0.19**	*0.12*	<0.01	0.07
	SW049	12/03/2024	0990_SW049_240312	ES2408294-AA	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.1	<0.1	<0.02	<0.02	<0.02	0.03	0.03	0.19	<0.02	<0.02	0.08	0.06	<0.05	<0.02	<0.02	2.37	**1.83**	*1.35*	0.05	0.48
	SW188	12/03/2024	0990_SW188_240312	ES2408294-AA	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	0.04	0.02	<0.05	<0.02	<0.02	0.94	**0.76**	*0.51*	0.02	0.25
	SW350	12/03/2024	0990_SW350_240312	ES2408294-AA	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	SW021	12/03/2024	0990_SW021_240312	ES2408294-AA	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	**0.13**	*0.08*	<0.01	0.05
March - Biannual	SW161	11/03/2024	0990_SW161_240311	ES2408294-AA	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	SW110	11/03/2024	0990_SW110_240311	ES2408294-AA	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	SW100	12/03/2024	0990_SW100_240312	ES2408294-AA	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
April - Quarterly	SW108	10/04/2024	0990_SW108_240410	ES2412006	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.01*	<0.01	<0.01
	SW108	10/04/2024	0990_QC101_240410	ES2412006	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03	*0.02*	<0.01	0.01
	SW108	10/04/2024	0990_QC201_240410	RN1426300	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.02	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	-	-	<0.02*	<0.01	<0.01
	SW153	10/04/2024	0990_SW153_240410	ES2412006	Normal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04	*0.02*	<0.01	0.02

Notes:
µg/L: micrograms per litre
LOR: limit of reporting
* LOR is above guideline value
Denotes first time detection above LOR for Sum of PFHxS+PFOS or PFOA
Denotes new exceedance of human health screening criteria

Appendix B- Table 4
Surface Water Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence- RAAF Base Tindal

Table 4 - Surface Water Analytical Results

LOR				
PFAS NEMP 2020 Drinking Water				
PFAS NEMP 2020 Freshwater 99%				
PFAS NEMP 2020 Recreational Water				
Location Code	**Sampled Date**	**Field ID**	**Lab Report**	**Sample Type**
SW140	11/03/2024	0990_SW140_240311	ES2408294-AA	Normal
SW016	12/03/2024	0990_SW016_240312	ES2408294-AA	Normal
SW049	12/03/2024	0990_SW049_240312	ES2408294-AA	Normal
SW188	12/03/2024	0990_SW188_240312	ES2408294-AA	Normal
SW350	12/03/2024	0990_SW350_240312	ES2408294-AA	Normal
SW021	12/03/2024	0990_SW021_240312	ES2408294-AA	Normal
SW161	11/03/2024	0990_SW161_240311	ES2408294-AA	Normal
SW110	11/03/2024	0990_SW110_240311	ES2408294-AA	Normal
SW100	12/03/2024	0990_SW100_240312	ES2408294-AA	Normal
SW108	10/04/2024	0990_SW108_240410	ES2412006	Normal
SW108	10/04/2024	0990_QC101_240410	ES2412006	Intra-lab Duplicate
SW108	10/04/2024	0990_QC201_240410	RN1426300	Inter-lab Duplicate
SW153	10/04/2024	0990_SW153_240410	ES2412006	Normal

r litre
g
eline value
tection above LOR for Sum of PFHxS+PFOS or PFOA
ance of human health screening criteria

Appendix C

Sampling Logs

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FQM - Daily Activity Report

Q4AN(EV)-002-FM1

Project Name:	PMAP / OMP	Project Number:	60612561 / 60676801
Project Location:	Tindal	Client:	DoD
Date of Fieldwork:	13/12/24	PM Name:	[redacted]
Time Arrive:	6:30	Time Depart:	

Administration

Personnel On-Site:	[redacted]
Contractors (Inducted, Downtime):	

Tasks Undertaken

Describe tasks and time of activities undertaken, observations, communications with PM, clients and subcontractors etc.

☐ Cross out unused portions of the site notes ☐ Indicate QAQC samples collected & note on tracking sheet

☐ Record number waste drums transported on & off-site ☐ Indicate observations of on-Site environmental receptors

Indicate Weather Conditions:

- 6:15 organise car & samples
- 6:30 grab coffee / assist [redacted] with QCs & filtering
- 7:30 arrived at first Stakeholder for OMP,
- Finished remainder properties for OMP @ 09:20
- Went into town filled up grabbed ice - Confirmed samples / cleaned up car & equipment

HSE Issues

Describe any HSE actions or oberservations or additional information that is not recorded in the HSEP

- General public
- weather
- Boggy conditions

Approval and Distribution

[redacted]

13/12/24
Date

Distribution: P[redacted]

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FQM - Daily Activity Report

Q4AN(EV)-002-FM1

Project Name:	PEASompl PMAP	Project Number:	60612561 / 60676801
Project Location:	Tindal	Client:	DoD
Date of Fieldwork:	13/02/24	PM Name:	[redacted]
Time Arrive:	6:00	Time Depart:	

Administration

Personnel On-Site:	[redacted]
Contractors (Inducted, Downtime):	

Tasks Undertaken

Describe tasks and time of activities undertaken, observations, communications with PM, clients and subcontractors etc.

☐ Cross out unused portions of the site notes ☐ Indicate QAQC samples collected & note on tracking sheet

☐ Record number waste drums transported on & off-site ☐ Indicate observations of on-Site environmental receptors

Indicate Weather Conditions:

- Safety meeting @ 6:30
- Sampled JOINT sites 07:30 - 12:15. Grabbed King Sw sampling signed docs
- Grabbed lunch
- Signed on at FSA 13:15.
- Collected 7+ PMAP FSA GME. QCs @ MW149.
- Finished sampling for PMAP @ 1530.
- 1530 → Sampling Sw. No flow measurements taken.
- Signed out at FSA @ 1730.
- Met with [redacted] @ effluent fields @ 1745.
- Demobilisation @ 1800.

HSE

Describe any HSE actions or observations or additional information that is not recorded in the HSEP

- Flora & fauna
- Sinking / mire mud when collecting Sw
- Ear protection when sampling ~~out~~ air side.

Approval and Distribution

[redacted]

13/02/24

Date

Distribution [redacted]

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FQM - Sample QAQC Tracking Sheet

Q4AN(EV)-011-FM1

Project Name:	Tindal	**Project Number:**	60612561 / 60676801
Project Location:	amp / PMAP / WQmp	**Client:**	DoD
PM Name:	[redacted]	**Fieldwork Staff:**	[redacted]

QAQC ID	Primary Sample ID	Sample Type	Batch Number
QC120	SW350	intra	—
QC220	SW350	inter	—
QC320	Glove	rinsate	—
QC420	—	field blank	—
QC520	—	trip blank	—
			—
			—
QC110	SWQ16-2	intra	—
QC210	SWQ16-2	inter	—
QC111	SWQ16-12	intra	—
QC211	SWQ16-12	inter	—
QC112	SWQ16-20	intra	—
QC212	SWQ16-20	inter	—
QC310	Glove	rinsate	—
QC410	—	field blank	—
QC510	—	trip blank	—
QC321	Glove	rinsate	—
QC421	—	field blank	—
~~QC521~~	—		
QC130_240213	Pot112	intra	
QC131_240213	Pot113	intra	
QC230_240213	Pot112	inter	
QC231_240213	Pot113	inter	
QC330	Glove	rinsate	
QC331	Glove	rinsate	
QC430	—	field blank	
QC431	—	field blank	
QC530	—	trip blank	
QC100	MW149	intra	
QC200	MW149	inter	
QC300	Glove	rinsate	
QC400	—	field blank	
QC500	—	trip blank	

SW / PMAP / Mass Flux

PMAP

SW / PMAP / Mass Flux

amp / private bore

FSA / BME / GW

DMC Project Requirements

QAQC	Required		Frequency		Method Used
Field Duplicates	☐ Yes	☐ No	☐ 1 in 10	☐ 1 in 20	
Field Triplicates	☐ Yes	☐ No	☐ 1 in 10	☐ 1 in 20	
Rinsate Blanks	☐ Yes	☐ No	☐ 1 per matrix/equipment/day		
Field Blanks	☑ Yes	☐ No	☐ 1 per day		
Trip Blanks	☐ Yes	☐ No	☐ 1 per ice chest		
Trip Spikes	☐ Yes	☑ No	☐ 1 per ice chest		

Approval and Distribution

[redacted] Staff Signature — Date: 12/02/24

Project Manager Signature — Date:

Distribution: Project Central File

Name	ProjectId	RiskDescription	DateApproved	QuoteId	Status
Private Property Sampling	NT_0990_PFASOMP_24		Thu 15 Feb 2024 06:00:29 GMT	ES2019AECOMAU0030	WorkorderReceived

Sample Points

Id	Name	Description	CollectionDate	MatrixId	Onhold	pH	Conductivi	Temperatu	Dissolved	Redox Pot	Observations		
1	0990_OTH117_240213		13/02/2024 8:57	WATER	FALSE	6.93	602	26.1	1.96	23.4	Colourless	no odour	no sheen
2	0990_OTH118_240214		14/02/2024 10:13	WATER	FALSE	6.91	1163	31.3	3.35	-127.1	Colourless	no odour	no sheen
3	0990_OTH119_240212		13/02/2024 13:00	WATER	FALSE	7.56	12.2	29.8	5.51	40.5	Colourless	no odour	no sheen
4	0990_POT112_240213		13/02/2024 10:57	WATER	FALSE	7.03	747	29.7	1.12	43.7	Colourless	no odour	no sheen
5	0990_POT113_240213		13/02/2024 11:08	WATER	FALSE	6.9	977	30.8	1.79	977	Colourless	no odour	no sheen
6	0990_POT114_240214		14/02/2024 9:51	WATER	FALSE	6.9	722	28.8	2.83	-131.8	Colourless	no odour	no sheen
7	0990_POT120_240214		14/02/2024 10:37	WATER	FALSE	7.26	689	25.9	5.85	-116.2	Colourless	no odour	no sheen
8	0990_POT121_240213		13/02/2024 10:16	WATER	FALSE	7.72	644	28.6	5.38	38.1	Colourless	no odour	no sheen
9	0990_POT124_240214		14/02/2024 9:17	WATER	FALSE	6.94	733	28.8	2.12	-141.4	Colourless	no odour	no sheeh
10	0990_POT125_240213		13/02/2024 13:24	WATER	FALSE	7.17	683	31.6	3.96	74.6	Colourless	no odour	no sheen
11	0990_POT127_240214		14/02/2024 10:33	WATER	FALSE	7.61	601	25.6	3.48	-147.6	Colourless	no odour	no sheen
12	0990_POT128_240212		13/02/2024 12:06	WATER	FALSE	6.78	858	30.4	3.23	40.2	Colourless	no odour	no sheen
13	0990_POT129_240213		13/02/2024 11:30	WATER	FALSE	7.12	670	28.3	3.7	65.6	Colourless	no odour	no sheen
14	0990_POT130_240214		14/02/2024 9:59	WATER	FALSE	7.02	700	26.9	4.71	-99.2	Colourless	no odour	no sheen
15	0990_POT131_240213		13/02/2024 13:44	WATER	FALSE	7.52	637	38.6	3.96	58.2	Colourless	no odour	no sheen
16	0990_POT198_240214		14/02/2024 9:28	WATER	FALSE	6.83	697	27.1	2.45	-126.4	Colourless	no odour	no sheen
17	0990_POT201_240213		13/02/2024 9:35	WATER	FALSE	7.04	692	29.8	4.36	30.3	Colourless	no odour	no sheen
18	0990_QC130_240213		13/02/2024 10:52	WATER	FALSE								
19	0990_QC131_240213		13/02/2024 13:11	WATER	FALSE								
20	0990_QC230_240213		13/02/2024 10:52	WATER	FALSE								
21	0990_QC231_240213		13/02/2024 13:11	WATER	FALSE								
22	0990_QC330_240213		14/02/2024 11:51	WATER	FALSE								
23	0990_QC331_240214		14/02/2024 11:51	WATER	FALSE								
24	0990_QC430_240213		14/02/2024 11:52	WATER	FALSE								
25	0990_QC431_240214		14/02/2024 11:52	WATER	FALSE								
26	0990_QC530_240213		14/02/2024 11:53	WATER	FALSE								

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FQM - Daily Activity Report

Q4AN(EV)-002-FM1

Project Name:	PFAS OMP / PMAP	Project Number:	60612561 / 60676801
Project Location:	TDL	Client:	
Date of Fieldwork:	11/03/24	PM Name:	[redacted]
Time Arrive:	9:30am	Time Depart:	

Administration

Personnel On-Site:	[redacted]
Contractors (inducted, Downtime):	

Tasks Undertaken

Describe tasks and time of activities undertaken, observations, communications with PM, clients and subcontractors etc.

☐ Cross out unused portions of the site notes
☐ Record number waste drums transported on & off-site
☐ Indicate QAQC samples collected & note on tracking sheet
☐ Indicate observations of on-Site environmental receptors
Indicate Weather Co[redacted]

- Pick [redacted] up @ 6:15
- Arrived at Katherine @ 09:45, picked up coffee
- Attended meeting online.

10:30 - POT237 - Signed access & sampled
- Had lunch
- Signed on at FSA to do 7r GW post rem. @ 17:20pm
- Dropped & gauged 7r GW GME PMAP post rem. Downloaded data loggers airside & removed MW12GI.JJ
- Collecting PMAP post rem FSA SW. 1SW140

@1500 - Katarno Community Centre
- Bore not on - unable to collect
- SW161 Collected.

- SW110 Collected @ 16:25

Incidents

Describe any HSE actions or observations or additional information that is not recorded in the HSEP

- General public
- Fbrg & fauna

Approval and Distribution

[redacted] ork Staff Signature — 11/03/24 Date

Distributio[redacted] File

ANZ

FQM - Daily Activity Report

AECOM

Q4AN(EV)-002-FM1

Project Name:	PFASOMP / PMAP	**Project Number:**	60612561 / 60626800
Project Location:	TDC	**Client:**	DoD
Date of Fieldwork:	12/03/24	**PM Name:**	[redacted]
Time Arrive:	07:15	**Time Depart:**	

Administration

Personnel On-Site:	[redacted]
Contractors (inducted, Downtime):	

Work Undertaken

Describe tasks and time of activities undertaken, observations, communications with PM, clients and subcontractors etc.

☐ Cross out unused portions of the site notes ☐ Indicate QAQC samples collected & note on tracking sheet

☐ Record number waste drums transported on & off-site ☐ Indicate observations of on-Site environmental receptors

Indicate Weather Conditions:

- 06:45 pick up Jess & grab coffee
- 07:15 arrived @ 84 Shackleford
- 07:30 – 9:00 Sampled all OMP / Private but Carmody
- 9:05 grabbed SW100
- 9:30 downloaded data loggers @ FTA.
- 10:30 grabbed SW016 & packing.
- 11:15 – Collected OTH114
- 11:45 Collected Carmody & QC101 & 201. QC100 & 200 @ Pot 113.
- lunch @ 41:50 am.

- 2:30pm Collected SW post remediation @ FSA
- 3:00pm Signed out ASP

- 3:30pm QC102 @ SW250, collected all MSF Ark
- 4:20 collect SW021

Incidents

Describe any HSE actions or observations or additional information that is not recorded in the HSEP

- General public
- Rainfall
- Precipitation

Approval and Distribution

[redacted] 12/13/24

Work Staff Signature — Date

Distribution: [redacted] File

ANZ

AECOM

FQM - Daily Activity Report

Q4AN(EV)-002-FM1

Project Name:	QFAS OMP	**Project Number:**	
Project Location:		**Client:**	
Date of Fieldwork:	13/07/24	**PM Name:**	[redacted]
Time Arrive:		**Time Depart:**	
Administration			
Personnel On-Site:	[redacted]		
Contractors (Inducted, Downtime):			
Tasks Undertaken			

Describe tasks and time of activities undertaken, observations, communications with PM, clients and subcontractors etc.

☐ Cross out unused portions of the site notes

☐ Record number waste drums transported on & off-site

☐ Indicate QAQC samples collected & note on tracking sheet

☐ Indicate observations of on-Site environmental receptors

Indicate Weather Conditions:

- 700 → 9:00 Collected all groude bore samples incl. ADH10C POTZ36

Collected from autosampler, QC's from:

SW016_01 - QC100
QC200

SW016 - 08 - QC101
- QC201

SW016 - 15 - QC102
- QC202

Head to AECOM accom to pick up equipment

Demobilise to Darwin office

Health and Safety

Describe any HSE actions or oberservations or additional information that is not recorded in the HSEP

Approval and Distribution

Fieldwork Staff Signature _____ Date _____

Distribution: Project Central File

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ANZ

FQM - Sample QAQC Tracking Sheet

Q4AN(EV)-011-FM1

Project Name:	OMP IPMAP TDL	**Project Number:**	606256 1 / 606 7680
Project Location:		**Client:**	DoD
PM Name:	[redacted]	**Fieldwork Staff:**	[redacted]

QC Information

QAQC ID	Primary Sample ID	Sample Type	Batch Number
QC300 - 240311	—	rinsate	
QC400 - 240311	—	field blank	
QC500 - 240311	—	trip blank	
QC100_240312	Pot 1 3	intra	
QC200 - 240312	Pot 1 3	inter	
QC101 - 240312	OTH 119	inter	
QC201 - 240312	OTH 119	intra	
QC100_240312	MW 147	intra	
QC200 - 240312	MW 147	inter	
QC102_240312	SW 350	intra	
QC202 - 240312	SW 350	inter	
QC301 - 240312	—	rinsate	
QC401 - 240312	—	field blank	
QC100 - 240313	SW016 - 01		
QC200 - 240313	SW016 - 01		
QC101 - 240313	SW016 - 05		
QC201 - 240313	SW016 - 05		
QC102 - 240313	SW016 - 15		
QC202 - 240313	SW016 - 15		

QAPP Project Requirements

QAQC	Required		Frequency		Method Used
Field Duplicates	☑ Yes	☐ No	☑ 1 in 10	☐ 1 in 20	
Field Triplicates	☐ Yes	☐ No	☑ 1 in 10	☐ 1 in 20	
Rinsate Blanks	☑ Yes	☐ No	☑ 1 per matrix/equipment/day		
Field Blanks	☑ Yes	☐ No	☑ 1 per day		
Trip Blanks	☑ Yes	☐ No	☑ 1 per ice chest		
Trip Spikes	☐ Yes	☑ No	☑ 1 per ice chest		

Approval and Distribution

[redacted] Fieldwork Staff Signature — 11/3/24 Date

Project Manager Signature — Date

Distribution: Project Central File

Name	ProjectId	RiskDescription	DateApproved	QuoteId	Status	
PP	twice wet SW	biannual SW and GW	NT_0990_PFASOMP_24		2	

Sample Points

Id	Name	Description	CollectionDate	MatrixId	Onhold		pH	Conductivity	Temperature	Dissolved Oxygen	Redox Potential	Observations			
1	0990_OTH117_240312		12/03/2024 8:49	WATER		FALSE	6.87	699	30.5	1.66	70.4	Colourless	no odour	no sheen	
2	0990_OTH118_240313		13/03/2024 9:55	WATER		FALSE	7.01	1149	31.7	4.18	64.7	Colourless	no odour	no sheen	
3	0990_OTH119_240312		12/03/2024 13:09	WATER		FALSE	6.96	1122	31.4	3.55	58.7	Colourless	no odour	no sheen	
4	0990_POT112_240312		12/03/2024 9:21	WATER		FALSE	7.25	953	30.1	0.59	-50.2	Light brown	sulphur odour	no sheen	
5	0990_POT113_240312		12/03/2024 9:32	WATER		FALSE	6.95	979	30.5	2.29	58.2	Colourless	no odour	no sheen	
6	0990_POT114_240313		13/03/2024 9:22	WATER		FALSE	6.9	722	30.1	3.24	63.5	Colourless	no odour	no sheen	
7	0990_POT120_240313		13/03/2024 10:15	WATER		FALSE	7.24	833	29.1	3.39	101.6	Colourless	no odour	no sheen	
8	0990_POT121_240312		12/03/2024 9:12	WATER		FALSE	7.62	680	27.7	5.18	74.8	Colourless	no odour	no sheen	
9	0990_POT124_240313		13/03/2024 9:00	WATER		FALSE	6.89	714	29.5	0.81	74	Colourless	no odour	no sheen	
10	0990_POT125_240312		12/03/2024 10:24	WATER		FALSE	6.92	755	31.9	1.63	50.2				
11	0990_POT127_240313		13/03/2024 10:01	WATER		FALSE	7.27	617	27.8	3.24	40.6	Colourless	no odour	no sheen	
12	0990_POT128_240312		12/03/2024 9:45	WATER		FALSE	6.94	919	30.6	3.22	65.8				
13	0990_POT129_240312		12/03/2024 9:54	WATER		FALSE	7.1	705	27.6	3	61.4	Colourless	no odour	no sheen	
14	0990_POT130_240313		13/03/2024 9:46	WATER		FALSE	7.02	692	26.7	4.13	61.1	Colourless	no odour	no sheen	
15	0990_POT131_240312		12/03/2024 10:10	WATER		FALSE	7.57	L509	27.9	3.98	50	Colourless	no odour	no sheen	
16	0990_POT198_240313		13/03/2024 9:09	WATER		FALSE	6.87	718	29.3	4.07	67.8	Colourless	no odour	no sheen	
17	0990_POT201_240312		12/03/2024 9:02	WATER		FALSE	7.02	726	29.8	2.39	76.6	Colourless	no odour	no sheen	
18	0990_QC100_240312		12/03/2024 9:36	WATER		FALSE									
19	0990_QC101_240312		12/03/2024 13:09	WATER		FALSE									
21	0990_QC201_240312		12/03/2024 13:09	WATER		FALSE									
22	0990_QC300_240311		11/03/2024 17:36	WATER		FALSE									
23	0990_QC400_240311		11/03/2024 17:37	WATER		FALSE									
24	0990_QC500_240311		11/03/2024 17:37	WATER		FALSE									
25	0990_POT237_240311		11/03/2024 12:18	WATER		FALSE	7.15	733	30.9	3.4	43.5				
26	0990_SW140_240311		11/03/2024 15:57	WATER		FALSE	8.17	42.8	31.4	30	52.7	Colourless	no odour	no sheen	0.1 flow
27	0990_SW161_240311		11/03/2024 17:33	WATER		FALSE	6.92	37.7	30.5	2.87	33.1	Brown	no odour	no sheen	high flow
28	0990_SW110_240311		11/03/2024 17:59	WATER		FALSE	6.86	20.5	29.8	3.92	30.3	Brown	no odour	no sheen	moderate flow
29	0990_SW100_240312		12/03/2024 10:40	WATER		FALSE	8	29.6	29.5	3.73	28.8	Light brown	no odour	no sheen	
30	0990_SW016_240312		12/03/2024 12:17	WATER		FALSE	7.74	178.2	27.8	4.76	42.5	Brown	no odour	no sheen	
31	0990_OTH114_240312		12/03/2024 12:54	WATER		FALSE	6.78	828	32.6	1.66	46.2	Light brown	no odour	no sheen	
32	0990_QC102_240312		12/03/2024 14:34	WATER		FALSE									
33	0990_QC202_240312		12/03/2024 14:34	WATER		FALSE									
34	0990_SW049_240312		12/03/2024 16:16	WATER		FALSE	8.1	124.6	35.1	3.93	14.3	Brown	no odour	no sheen	low flow
35	0990_SW188_240312		12/03/2024 17:08	WATER		FALSE	7.7	343.3	33.9	3.67	35.4	Brown	no odour	no sheen	low flow
36	0990_SW350_240312		12/03/2024 17:25	WATER		FALSE	7.53	84.7	30.9	4.07	19.8	Brown	no odour	no sheen	high flow in 5th culvert leaf matter
37	0990_QC103_240312		12/03/2024 17:27	WATER		FALSE									
38	0990_QC203_240312		12/03/2024 17:27	WATER		FALSE									
39	0990_QC301_240312		12/03/2024 17:28	WATER		FALSE									
40	0990_QC401_240312		12/03/2024 17:29	WATER		FALSE									
41	0990_SW021_240312		12/03/2024 17:55	WATER		FALSE	7.69	207.3	31	4.45	17.3	Brown	no odour	no sheen	moderate flow
42	0990_POT236_240313		13/03/2024 10:36	WATER		FALSE	7.99	753	26	4.59	45.8	Colourless	no odour	no sheen	
43	0990_QC302_240313		13/03/2024 10:46	WATER		FALSE									
44	0990_QC402_240313		13/03/2024 10:46	WATER		FALSE									

AECOM

ANZ

FQM - Sample QAQC Tracking Sheet

Q4AN(EV)-011-FM1

Project Name:	PFASOMP	Project Number:	60612561
Project Location:	COSSACK / KATHERIN	Client:	DoD
PM Name:	[redacted]	Fieldwork Staff:	[redacted]

QAQC Information

QAQC ID	Primary Sample ID	Sample Type	Date
Private Property			
QC100	OTH119	Dup	10/4/24
QC200	OTH119	Trip	10/4/24
QC300	Glove	Rinsate	10/4/24
QC400	-	Field Blank	10/4/24
QC500	-	Trip blank	10/4/24
SW			
QC101	SW153	Dup	10/4/24
QC201	SW153	Trip	10/4/24
QC301	Glove	Rinsate	10/4/24
QC401		Field. B	11/4/24
Priv. Prop.			
QC102	SS774	Dup	10/4/24
QC202	SS774	Trip	10/4/24
FSA GME			
QC110	MW147	Dup	11/4/24
QC210	MW147	Trip	
QC310	Glove	Rinsate	
QC410		Field B	
QC510		Trip B	

QA\QC Project Requirements

QAQC	Required		Frequency		Method Used
Field Duplicates	☑ Yes	☐ No	☑ 1 in 10	☐ 1 in 20	
Field Triplicates	☑ Yes	☐ No	☑ 1 in 10	☐ 1 in 20	
Rinsate Blanks	☑ Yes	☐ No	☑ 1 per matrix/equipment/day		
Field Blanks	☑ Yes	☐ No	☑ 1 per day		
Trip Blanks	☑ Yes	☐ No	☑ 1 per ice chest		
Trip Spikes	☐ Yes	☑ No	☐ 1 per ice chest		

Approval and Dis[redacted]

[redacted] 12/4/24

Fieldwork Staff Signature — Date

Project Manager Signature — Date

Distribution: Project Central File

ANZ

FQM - NAPL and Groundwater Level Gauging Record

AECOM

Q4AN(EV)-414-FM1

Project Name:	OMP	Project Location:	Tindal	PM Name:	[redacted]
Project Number:	60612561	Client:	DoD	Fieldwork Staff Name:	

Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant column.

Field Data

Well ID	Date (dd/mm/yy)	Time (24hr mm)	HS Install (m)	Depth to LNAPL (mBTOC)	Depth to Groundwater (mBTOC)	LNAPL Thickness (m)	Depth to DNAPL (mBTOC)	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)
MW126I	11:15	9/4/24	Nil		1.522		36.35			GC, NO, NS
MW126D	11:30	"			1.738		>50			"
MW145I	12:00	"	~12		1.649			15.45		"
MW149	12:30	"			3.105			17.55		" sediment on probe
MW147	12:49	"			2.045			10.38		
MW106	13:10	"			2.355			19.26		
MW127	13:20	"			1.770			16.69		
802S	9/4/24				2.519					
802I	"				2.487					
802D	"				2.433					
803S					2.177					
803I					3.999					
803D					4.369					

Measurement Equipment

Make & Model:		Supplier:	
Serial No.:		Calibration Report Provided?	

Notes/Comments

(PID) - photo ionisation detector; (ppm) - parts per million; (LNAPL) - light non-aqueous phase liquids; (DNAPL) - dense light non-aqueous phase liquid; (mBTOC) - metres below top of casing

Approval and Distribution

Fieldwork Staff Signature Date

Project Manager Signature Date

Distribution: Project Central File

ANZ

FQM - NAPL and Groundwater Level Gauging Record

AECOM

Q4AN(EV)-414-FM1

Project Name:		Project Location:		PM Name:	
Project Number:		Client:		Fieldwork Staff Name:	

Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant column.

Field Data

Well ID	Date (dd/mm/yy)	Time (24hr:mm)	HS Install (m)	Depth to LNAPL (mBTOC)	Depth to Groundwater (mBTOC)	LNAPL Thickness (m)	Depth to DNAPL (mBTOC)	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)
MW127	11/4/24	7:30								
MW126I	11/4/24	11:33			1.600					
MW1260	"	11:34			1.784					
MW145I	"	12:03			1.709					
MW227		12:26			1.829					
MW406	"	12:40			2.414					
MW147	"	13:05			2.096					
MW141	"	13:25			3.167					

W.25

Measurement Equipment

Make & Model:		Supplier:	[redacted]
Serial No.:		Calibration Report Provided?	

Notes/Comments

PID) - photo ionisation detector; (ppm) - parts per million; (LNAPL) - light non-aqueous phase liquids; (DNAPL) - dense light non-aqueous phase liquid; (mBTOC) - metres below top of casing

Approval and Distribution

[redacted]

Fieldwork Staff Signature Date

[redacted]

Project Manager Signature Date

Distribution: Project Central File

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name:	TMAP 10MP	Project Number:		PM Name:		Surface Water/Groundwater:	GW
Client:		Project Location:		Fieldwork Staff:		Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☐ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Location ID	Date	QA/QC	Turbidity (NTU)	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
MW126I	11/4/24			3.67	649	9.42	-106.0	30.4	Colourless, low Hb, sulfur odour, no sheen
MW126D	"			4.12	731	6.44	55.7	30.1	" no odour
12:05 MW145I	"			3.55	778	6.50	44.9	30.5	"
12:29 MW127	"			2.65	447.1	6.85	92.9	31.7	"
12:49 MW40b	"			3.86	750	6.60	104.8	30.8	"
13:10 MW147	"	140/210		3.58	690	6.90	103.6	30.7	"
13:27 MW149	"			3.79	591	6.72	106.6	29.6	sediment at bottom, pale brown. low Hb, NO NS
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected			QA/QC Information	Field Commets
Field Filtered:	Unfiltered:	x 40 mL Vial HCl	x 60 mL Ferrous	x 60 mL metals HNO3		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
		x 40 mL Vial H2SO4	x 100 mL Amber	x 250 mL Plastic		

Approval and Distribution

[redacted] Fieldwork Staff Signature Date

[redacted] Checker Name and Signature Date

[redacted] Project Manager Signature Date

Distribution: Project Central File

AECOM

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name:	PFASOMP	Project Number:	60612560	PM Name:	[redacted]	Surface Water/Groundwater:	GW/SW
Client:	DoD	Project Location:	Tindal	Fieldwork Staff:		Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.: 761	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size: 1L	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model: B	☐ Dedicated	Intake depth:	Hydrasleeve Type: HS1	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / (N)	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☑ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

	Location ID	Date	QA/QC	Turbidity (NTU)	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
7:30	OTH117	10/4/24	-		4.81	776	6.75	76.8	28.1	Colourless, Low Hz, No, NS
8:10	POT201	"			4.99	659	6.80	78.9	23.7	" out of hose
9:00	POT121	"			5.63	704	7.17	107.6	24.5	"
9:20	POT112	"			4.43	841	6.90	124.4	27.7	"
9:42	POT113	"			4.40	793	6.94	133.0	29.2	"
9:53	POT128	"			4.25	756	6.95	125.8	30.4	"
10:36	POT129	"			5.55	703	7.13	119.5	26.5	White
11:05	OTH119	"			5.43	1073	6.99	131.8	29.9	Colourless "
11:45	SW153	"			4.47	746	6.99	107.2	30.1	" low flow
12:39	POT131	"			3.66	808	7.17	118.8	45.9	"
13:17	POT126	"			4.23	728	6.86	134.7	31.2	"
pk. 1400					3.97	823	6.72	118.7	31.2	
pck 1452					4.26	760	6.73	118.6	29.6	
	Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

(Bore

Analytes Sampled for:		Bottles Collected			QA/QC Information	Field Commets
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
		x 40 mL Vial (H2SO4)	x 100 mL Amber	x 250 mL Plastic		

Approval and Distribution

[redacted]

Fieldwork Staff Signature — Date — Checker Name and Signature — Date

[redacted]

Project Manager Signature — Date

Distribution: Project Central File

ANZ

FQM - Groundwater Sampling and Purging Record

AECOM

Q4AN(EV)-405-FM1

Project Name:	PFASOMP	Project Number:	60612561	PM Name:	[redacted]	Surface Water/Groundwater:	SW/GW
Client:		Project Location:		Fieldwork Staff:		Well Development or Well Sampling Event? (circle)	

General Bore Information		Parameter Info.	Decontamination	Sampling Method	Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☐ Dedicated	Intake depth:	Hydrasleeve Type:	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☐ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)	Sampling Start Time:	Hydrasleeve out
	Key Type (if applicable):	☐ Retrieved				Parameters
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:		Total purged volume (L):		

Water Quality Parameters

Location ID	Date	QA/QC	Turbidity (NTU)	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
	10/4/24			5.02	51.2	8.46	79.5	28.1	
SW108	"			5.30	54.0	7.45	87.4	29.2	mod flow. pale brown, low TB
POT120	"			5.51	695	6.94	124.5	30.0	Colourless low TB
GTH118	"			3.10	1102	7.13	125.8	42.7	" Hose
POT127	"			4.26	733	7.09	122.4	30.9	
POT124	11/4/24			4.48	748	6.69	85.9	28.0	White
POT198	"			5.61	656	6.72	101.3	22.5	Colourless
POT114	"			4.87	654	6.79	106.8	25.1	Colourless.
POT130	"			5.29	669	7.41	115.6	28.5	
POT125	"			3.78	709	6.69	131.0	30.7	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

15:02
Jack Tank
15:50
16:18
16:36
14:45
7:44
8:18
9:06
9:37
9:58

Analytes Sampled for:		Bottles Collected						QA/QC Information	Field Comments
Field Filtered:	Unfiltered:		x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO3)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.
			x 40 mL Vial (H2SO4)		x 100 mL Amber		x 250 mL Plastic		

Approval and Distribution

[redacted]

Fieldwork Staff Signature — Date — Checker Name and Signature — Date

[redacted]

Project Manager Signature — Date — Distribution: Project Central File

Appendix D

Calibration Certificates

AECOM

Sampling round: PCASOMP/IPMAP/WQMP Location: Tidal Project number & name: 60612561

PM: [redacted] Field staff [redacted] Client: DoD

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		EC 1413 (µS/cm)		ORP (mV) 12 C		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
12/02	—	16.1	4.06	4.01	7.02	7.01	100	95	1446	1435	260.1		[redacted]
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						
							100						

Notes: Borrowed YSI from Wendlease

AECOM

Sampling round: 202404_AECOM **Location:** Tindal **Project number & name:** 60612561 - PFASOMP

PM: [redacted] **Field staff:** [redacted] **Client:** DoD

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		EC 1413 (µS/cm)		ORP (mV)		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
10/4	B	25.0	4.01	4.00	7.01	7.00	100	-	1420	-	229.8	-	[redacted]
11/4	B	-	4.0	-	7.00	-	100	-	1415	-	280.1	-	
							100						
							100						
							100						
							100						
							100						
							100						
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							100						
							100						

Notes:

Sampling round: 202403_AECOM Location: Tidal

PM: [redacted] Field staff: [redacted]

Project number & name: 60612561 - PFASOMP

Client: DoD

Date	YSI #	Temp (°C)	pH 4		pH 7		DO (100%)		EC 1413 (µS/cm)		ORP (mV)		Initials
			Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	Pre-cal	Post-cal	
11/3	13	24.7	4.03	4.00	7.02	7.00	100	-	1487	1413	225.7	230.0	[redacted]
12/3	13	25.2	4.00	-	7.00	-	100		1415	-	230.1	-	
13/3	13	25.1	4.00	-	7.00	-	100		1413	-	230.2	-	
							100						
							100						
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							100						

Notes:

Appendix E

Data Validation Reports

AECOM

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2404922, RN1420358		

Key Findings:

The groundwater analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for concentrations of PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for all primary sample results (except for samples collected at OTH118, OTH119, POT112, POT113, POT120, POT121 and POT129). This should be taken into consideration when interpreting results.
- Elevated RPDs should be taken into consideration when using data for PFOS quantitatively.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control (QAQC)		✓			No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times			✓	1	No
Frequency of laboratory QA/QC			✓	2	No
Limits of reporting (LOR)			✓	3	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries			✓	4	No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other observations/ general comments		✓			No

Comments

1. Sample handling/preservation/holding times	**Sample Preservation** The primary laboratory batch receipt temperature (18.6-20.1 °C) was outside of the recommended range (≤6°C). The secondary laboratory batch was noted to be received as 'chilled'. Potential under reporting must be taken into consideration. However, as samples were received well the below ambient groundwater temperature at the time of sampling (~30 °C), the samples were immediately cooled upon collection, the potential for under reporting is not considered to materially affect the interpretation of results.

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2404922, RN1420358		

2.	Frequency of laboratory QA/QC	Laboratory duplicate samples were not reported at the required frequency for PFAS in primary batch ES2404922. The precision of the data can be assessed as acceptable based on intra- and inter-laboratory duplicate RPDs (which were reported at the required frequencies and within control limits, with the exception listed in Comment 4 below), and available laboratory duplicate RPDs for the same analytical method group (which were reported within control limits). Matrix spikes were not reported at the required frequency for PFAS method group in primary batch ES2404922. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits) and available matrix spike recoveries for the same analytical method group (which were reported within control limits).
3.	Limits of reporting (LOR)	Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water. The potential exists for concentrations of PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for all primary sample results, with the exception of those collected at: • OTH118 • OTH119 • POT112 • POT113 • POT120 • POT121 • POT129 Samples from the above listed locations reported PFOS concentrations above the LOR and therefore above the adopted guideline criteria. The potential for PFOS concentrations to be above the selected criteria but below the LOR should be taken into consideration when interpreting results for all other sample locations.

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2404922, RN1420358		

4.	Field inter-laboratory relative percent differences (RPDs)	Field inter-laboratory duplicate RPDs were reported within control limits, with the exception of the following, higher concentrations are in bold (as shown in the RPD table): • **0990_POT113_240213** & 0990_QC231_240213 for PFOS (47%) The primary and secondary laboratories have confirmed the results. As all concentrations of PFOS (and the sum of PFHxS+PFOS), were reported well above or well below the adopted guidelines and/or LOR, the elevated RPD is not considered to affect the interpretation of results against guidelines. However, the elevated RPD should be taken into consideration when using the data quantitatively. As a conservative approach, the higher PFOS concentration reported at **POT113** (primary sample result) should be used when interpreting results quantitatively.
5.	Matrix spike (MS) % recoveries	Matrix spike recoveries were not determined for PFHxS and PFOS as background levels were greater than or equal to 4x spike levels in primary batch ES2404922. These non-determinations do not reflect method bias and do not affect data interpretation. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits), and available matrix spike recoveries for the same analytical method group (which were reported within control limits).

QA/QC Blanks

Lab Report Number		ES2404922	ES2404922	ES2404922	ES2404922	ES2404922
Field ID		0990_QC330_240213	0990_QC331_240214	0990_QC430_240213	0990_QC431_240214	0990_QC530_240213
Date		13/02/2024	14/02/2024	13/02/2024	14/02/2024	13/02/2024
Sample Type		Rinsate	Rinsate	Field Blank	Field Blank	Trip Blank
Analyte	**Units**	**LOR**				
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	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
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	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
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	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
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	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
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	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
Perfluorobutane sulfonic acid (PFBS)	µg/L	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
Perfluorodecanesulfonic acid (PFDS)	µg/L	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
Perfluorododecanoic acid (PFDoDA)	µg/L	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
Perfluoroheptanoic acid (PFHpA)	µg/L	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
Perfluorononanoic acid (PFNA)	µg/L	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
Perfluoropentane sulfonic acid (PFPeS)	µg/L	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
Perfluorotetradecanoic acid (PFTeDA)	µg/L	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
Perfluoroundecanoic acid (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
Perfluorooctane sulfonic acid (PFOS)	µg/L	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
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Data Validation Report
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PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Relative Percentage Differences

AECOM

Lab Report Number		ES2404922	ES2404922		ES2404922	ES2404922		ES2404922	RN1420358		ES2404922	RN1420358		
Field ID		0990 POT112 240213	0990 QC130 240213	**RPD**	0990 POT113 240213	0990 QC131 240213	**RPD**	0990 POT112 240213	0990 QC230 240213	**RPD**	0990 POT113 240213	0990 QC231 240213	**RPD**	
Sample Type		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		
Date		13/02/2024	13/02/2024		13/02/2024	13/02/2024		13/02/2024	13/02/2024		13/02/2024	13/02/2024		
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	<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	<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	<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	<0.05	<0.01	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<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	<0.02	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<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	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	0.03	0.03	0	<0.02	<0.01	0	0.03	0.013	79
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	<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	<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	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	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	<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	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	0.06	0.06	0	<0.02	<0.01	0	0.06	0.023	89
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	<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	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	0.03	0.03	0	<0.02	<0.01	0	0.03	0.012	86
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<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	<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	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.03	0.03	0	0.21	0.22	5	0.03	<0.02	40	**0.21**	**0.13**	**47**
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<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	0.04	0.04	0	0.15	0.16	6	0.04	0.027	39	0.15	0.09	50

*RPDs have only been considered where a concentration is greater than 1 times the LOR.
**High RPDs are in bold (Acceptable RPDs for each LOR multiplier range are: 200 (1-10 x LOR); 50 (10-20 x LOR); 30 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

AECOM

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2408294, RN1423430		

Key Findings:

The groundwater analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for concentrations of PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L) but below the laboratory LOR (0.01 µg/L) for primary samples collected at OTH118, POT124, POT125, POT127, POT128, POT130, POT131, POT198, POT201, POT236, POT237, SW100, SW110, SW161, SW350. This should be taken into consideration when interpreting results.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control (QAQC)		✓			No
Number of tests requested/reported			✓	1	No
Sample handling/preservation/holding times			✓	2	No
Frequency of laboratory QA/QC			✓	3	No
Limits of reporting (LOR)			✓	4	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries		✓			No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other observations/ general comments		✓			

Comments

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2408294, RN1423430		

1.	Frequency of field quality assurance/quality control (QAQC)	**Field Intra- and Inter-Laboratory Duplicates** Field intra- and inter-laboratory duplicate samples were not collected at a frequency of one in ten primary samples (one of each in total were analysed). This sampling event was completed in conjunction with two other PFAS water sampling programs conducted as part of the PFAS Management Area Plan (PMAP) at RAAF Base Tindal. The RPDs associated with the current OMP water sampling event (laboratory batches ES2408294 and RN1423430) and concurrent PMAP water sampling events (laboratory batches ES2408295 and RN1423249) are presented in the RPD tables. The precision of the data can be assessed as acceptable based on the available intra- and inter-laboratory duplicate RPDs associated for the current OMP water sampling event, in addition to the intra- and inter-laboratory duplicate RPDs associated with the concurrent PMAP water sampling events, which were reported within control limits.
2.	Sample handling/preservation/holding times	**Sample Preservation** The primary laboratory batch receipt temperature (24.1 °C) was outside of the recommended range (≤6°C). The secondary laboratory batch was noted to be received as 'chilled'. Potential under reporting must be taken into consideration. However, as samples were received well the below ambient groundwater temperature at the time of sampling (~30 °C), the samples were immediately cooled upon collection, the potential for under reporting is not considered to materially affect the interpretation of results. **Sample Handling** Sample 0990_POT129_240312 was analysed for the PFAS full suite via direct injection analysis (EP231X_INJ) as the bottle leaked in transport and only a minimal volume of water was available for analysis. This change in analytical methodology does not materially affect the interpretation of the results. Further, PFAS concentrations reported below the LOR for all analytes excluding PFOS (0.02 µg/L), which was within the range of previous reported concentrations

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2408294, RN1423430		

3.	Frequency of laboratory QA/QC	Laboratory duplicate samples were not reported at the required frequency in both PFAS methods of analysis (EP231X (standard) and EP231X_INJ (direct injection)) in primary batch ES2408294. The precision of the data can be assessed as acceptable based on the available intra- and inter-laboratory duplicate RPDs, and, where available, laboratory duplicate RPDs for the same analytical method group (which were reported within control limits). Matrix spikes were not reported at the required frequency in both methods of analysis (EP231X (standard) and EP231X_INJ (direct injection)) for PFAS method group in primary batch ES2408294. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits) and, where available, matrix spike recoveries for the same analytical method group (which were reported within control limits).
4.	Limits of reporting (LOR)	Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water. The potential exists for concentrations of PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for primary samples collected at: • OTH118 • POT124 • POT125 • POT127 • POT128 • POT130 • POT131 • POT198 • POT201 • POT236 • POT237, • SW100 • SW110 • SW161 • SW350 The potential for PFOS concentrations to be above the selected criteria but below the LOR should be taken into consideration when interpreting results for the above listed samples.
5.	Other observations	Results for groundwater samples 0990_OTH119_240312 and 0990_QC100_240312 were confirmed by re-analysis. Groundwater sample 0990_QC102_240312 required dilution due to the presence of high-level contaminants. Hence, LOR values were adjusted accordingly.

Data Validation Report
Field RPDs
PFAS Ongoing Monitoring Plan
Department of Drfence - RAAF Base Tindal

Relative Percentage Difference

Lab Report Number		ES2412006	ES2412006		ES2412006	ES2412006		ES2412007	ES2412007		ES2412006	RN1426300		ES2412006	RN1426300		ES2412007	RN1426301					
Field ID		0990 OTH119 240410	0990 QC100 240410	**RPD**	0990 SW108 240410	0990 QC101 240410	**RPD**	0990 MW147 240411	0990 QC110 240411	**RPD**	0990 OTH119 240410	0990 QC200 240410	**RPD**	0990 SW108 240410	0990 QC201 240410	**RPD**	0990 MW147 240411	0990 QC210 240411	**RPD**				
Sampled Date		10/04/2024	10/04/2024		10/04/2024	10/04/2024		11/04/2024	11/04/2024		10/04/2024	10/04/2024		10/04/2024	10/04/2024		11/04/2024	11/04/2024					
Sample Type		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate					
Analyte	**Units**	**LOR**																					
PFAS Full Suite																							
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	<0.05	0	<0.05	<0.01	0	<0.05	<0.01	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	<0.05	0	<0.05	<0.01	0	<0.05	<0.01	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	<0.05	0	<0.05	<0.01	0	<0.05	<0.01	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	<0.05	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0				
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0				
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.65	0.69	6	<0.02	<0.01	0	<0.02	<0.01	0	0.65	0.81	22				
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	0.2	0.2	0	<0.1	<0.05	0	<0.1	<0.05	0	0.2	0.29	37				
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.06	0.06	0	<0.02	<0.01	0	<0.02	<0.01	0	0.06	<0.01	143				
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
Perfluoroheptane sulfonic acid (PFHxS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.49	0.54	10	<0.02	<0.01	0	<0.02	<0.01	0	0.49	0.38	25				
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.19	0.2	5	<0.02	<0.01	0	<0.02	<0.01	0	0.19	0.19	0				
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	1.55	1.61	4	<0.02	<0.01	0	<0.02	<0.01	0	1.55	1.8	15				
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	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	0.11	0.12	9	<0.02	<0.01	0	<0.02	<0.01	0	0.11	0.072	42				
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.8	0.8	0	<0.02	<0.01	0	<0.02	<0.01	0	0.8	0.89	11				
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	0.34	0.36	6	<0.02	<0.02	0	<0.02	<0.02	0	0.34	0.38	11				
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<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	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.03	0.02	40	<0.01	0.02	67	16.7	18.1	8	0.03	<0.02	40	<0.01	<0.02	0	16.7	14	18				
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.02	0.03	40	<0.01	<0.01	0	0.57	0.59	3	0.02	0.022	10	<0.01	<0.01	0	0.57	0.58	2				
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	0	<0.01	0.01	0	4.91	4.99	2	<0.01	<0.01	0	<0.01	<0.01	0	4.91	3.7	28				

**High RPDs are in bold (Acceptable RPDs for each EQL multiolier ranoe 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

Data Validation Report
Field RPDs - ES2408294 (Primary RPD results)
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Relative percentage Difference

	Lab Report Number	ES2408295	ES2408295		ES2408295	RN1423249		ES2408295	ES2408295	
	Field ID	0990_SW016_01_240313	0990_QC100_240313	RPD	0990_SW016_01_240313	0990_QC200_240313	RPD	0990_SW016_08_240313	0990_QC101_240313	RPD
	Sampled Date/Time	13/03/2024 11:37	13/03/2024 11:37		13/03/2024 11:37	13/03/2024 11:37		13/03/2024 20:07	13/03/2024 20:07	
ChemName	**Units**	**EQL**								
PFAS Full Suite										
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
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
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
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
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<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)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<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)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	0.02	<0.02	0	0.02	<0.01	67	<0.02	0.02	0
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<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)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<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)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	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	<0.01	0	<0.02	<0.02	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.12	0.13	8	0.12	0.086	33	0.09	0.09	0
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.06	0.07	15	0.06	0.043	33	0.06	0.07	15

**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

Data Validation Report
Field RPDs - ES2408294 (Primary RPD results)
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Tindal

Relative percentage Difference

	Lab Report Number	ES2408295	RN1423249		ES2408295	ES2408295		ES2408295	RN1423249	
	Field ID	0990 SW016 08 240313	0990 QC201 240313	RPD	0990 SW016 15 240313	0990 QC102 240313	RPD	0990 SW016 15 240313	0990 QC202 240313	RPD
	Sampled Date/Time	13/03/2024 20:07	13/03/2024 20:07		13/03/2024 3:08	13/03/2024 3:08		13/03/2024 3:08	13/03/2024 3:08	
ChemName	**Units**	**EQL**								
PFAS Full Suite										
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
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
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
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
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
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
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<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)	<0.05	<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)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
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
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
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
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
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
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
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
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
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<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)	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<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	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.09	0.06	40	0.1	0.08	22	0.1	0.048	70
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.06	0.041	38	0.05	0.04	22	0.05	0.023	74

**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

Field QA/QC

Lab Report Number	ES2412006	ES2412006
Field ID	0990_QC300_240410	0990_QC302_240410
Sampled Date	10/04/2024	10/04/2024
Sample Type	Rinsate	Rinsate

Analyte	Units	LOR		
PFAS Full Suite				
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05	<0.05
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02
Sum of PFAS	µg/L	0.01	<0.01	<0.01
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01

AECOM

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2412006, RN1426300		

Key Findings:

The groundwater analytical data can be used as a basis for interpretation, subject to the limitations outlined below:

- The potential exists for concentrations of PFOS to be above the adopted guideline but below the laboratory LOR for primary samples collected at OTH117, OTH118, POT114, POT125, POT126, POT127, POT128, POT130, POT131, POT198, POT201, and SW108. This should be taken into consideration when interpreting results.

Component		Outliers			Material impact on interpretation
		No	Yes	Comment	
Frequency of field quality assurance/quality control (QAQC)			✓	1	No
Number of tests requested/reported		✓			No
Sample handling/preservation/holding times			✓	2	No
Frequency of laboratory QA/QC			✓	3	No
Limits of reporting (LOR)			✓	4	No
Blank analysis	Field blank	✓			No
	Rinsate blank	✓			No
	Trip blank	✓			No
	Method blank	✓			No
Field intra-laboratory relative percent differences (RPDs)		✓			No
Field inter-laboratory RPDs		✓			No
Laboratory duplicate RPDs		✓			No
Matrix spike (MS) % recoveries		✓			No
Laboratory control spike (LCS) % recoveries		✓			No
Surrogate % recoveries		✓			No
Other observations/ general comments		✓			

Comments

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2412006, RN1426300		

1.	Frequency of field QA/QC	Field intra- and inter-laboratory duplicate samples were not collected at a frequency of one in ten primary water samples, two of each in total were analysed, however three were required (23 primary water samples). This sampling event was completed in conjunction with another PFAS water sampling programs conducted as part of the PFAS Management Area Plan (PMAP) at RAAF Base Tindal. The RPDs associated with the current OMP water sampling event (laboratory batches ES2412006 and RN1426300) and concurrent PMAP water sampling events (laboratory batches ES2412007 and RN1426301) are presented in the RPD tables. The precision of the data can be assessed as acceptable based on the available intra- and inter-laboratory duplicate RPDs associated for the current OMP water sampling event, in addition to the intra- and inter-laboratory duplicate RPDs associated with the concurrent PMAP water sampling events, which were reported within control limits.
2.	Sample handling/preservation/ holding times	**Sample Preservation** The primary laboratory batch receipt temperature (12.4 °C) was outside of the recommended range (≤6°C). The secondary laboratory batch was noted to be received as 'chilled'. Potential under reporting must be taken into consideration. However, as samples were received well the below ambient groundwater and surface water temperature at the time of sampling (~30 °C), the samples were immediately cooled upon collection, the potential for under reporting is not considered to materially affect the interpretation of results.
3.	Frequency of laboratory QA/QC	Laboratory duplicate samples were not reported for PFAS in water matrices for primary batch ES2412006. The precision of the data can be assessed as acceptable based on the available intra- and inter-laboratory duplicate RPDs, and, where available, laboratory duplicate RPDs for the same analytical method group (which were reported within control limits). Matrix spikes were not reported for PFAS method group in water matrices for primary batch ES2412006. The accuracy of the data can be assessed as acceptable based on method blanks, LCS and surrogate spike recoveries (which were reported at the required frequencies and within control limits) and, where available, matrix spike recoveries for the same analytical method group (which were reported within control limits).

DATA VALIDATION REPORT; WATER

Project Manager:	[redacted]	**Validation by:**	[redacted]
Project number:	60612561	**Date:**	
Site:	0990-RAAF Base Tindal		
Matrix:	Water	**Data Verified by:**	
Laboratory:	ALS Sydney & NMI	**Date:**	
Lab reference:	ES2412006, RN1426300		

4. Limits of reporting (LOR)	Limits of reporting were sufficiently low to enable assessment against adopted guideline criteria, with the exception of PFOS in water. The potential exists for concentrations of PFOS to be above the adopted PFAS Freshwater 99% Species Protection guideline (0.00023 µg/L), but below the laboratory LOR (0.01 µg/L) for primary water samples collected at: • OTH117 • OTH118 • POT114 • POT125 • POT126 • POT127 • POT128 • POT130 • POT131 • POT198 • POT201 • SW108 The potential for PFOS concentrations to be above the selected criteria but below the LOR should be taken into consideration when interpreting results for the above listed samples.

Data Validation Report
Field RPDs
PFAS Ongoing Monitoring Plan
Department of Drfence - RAAF Base Tindal

Relative Percentage Difference

Lab Report Number		ES2412006	ES2412006		ES2412006	ES2412006		ES2412007	ES2412007		ES2412006	RN1426300		ES2412006	RN1426300		ES2412007	RN1426301					
Field ID		0990 OTH119 240410	0990 QC100 240410	**RPD**	0990 SW108 240410	0990 QC101 240410	**RPD**	0990 MW147 240411	0990 QC110 240411	**RPD**	0990 OTH119 240410	0990 QC200 240410	**RPD**	0990 SW108 240410	0990 QC201 240410	**RPD**	0990 MW147 240411	0990 QC210 240411	**RPD**				
Sampled Date		10/04/2024	10/04/2024		10/04/2024	10/04/2024		11/04/2024	11/04/2024		10/04/2024	10/04/2024		10/04/2024	10/04/2024		11/04/2024	11/04/2024					
Sample Type		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Intra-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate		Primary	Inter-lab Duplicate					
Analyte	**Units**	**LOR**																					
PFAS Full Suite																							
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	<0.05	0	<0.05	<0.01	0	<0.05	<0.01	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	<0.05	0	<0.05	<0.01	0	<0.05	<0.01	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	<0.05	0	<0.05	<0.01	0	<0.05	<0.01	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	<0.05	0	<0.05	<0.01	0	<0.05	<0.01	0	<0.05	<0.01	0				
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<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)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0				
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.65	0.69	6	<0.02	<0.01	0	<0.02	<0.01	0	0.65	0.81	22				
Perfluorobutanoic acid (PFBA)	µg/L	0.1 : 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.1	0	0.2	0.2	0	<0.1	<0.05	0	<0.1	<0.05	0	0.2	0.29	37				
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.06	0.06	0	<0.02	<0.01	0	<0.02	<0.01	0	0.06	<0.01	143				
Perfluorodecanoic acid (PFDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
Perfluoroheptane sulfonic acid (PFHxS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.49	0.54	10	<0.02	<0.01	0	<0.02	<0.01	0	0.49	0.38	25				
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.19	0.2	5	<0.02	<0.01	0	<0.02	<0.01	0	0.19	0.19	0				
Perfluorohexanoic acid (PFHxA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	1.55	1.61	4	<0.02	<0.01	0	<0.02	<0.01	0	1.55	1.8	15				
Perfluorononanoic acid (PFNA)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	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	0.11	0.12	9	<0.02	<0.01	0	<0.02	<0.01	0	0.11	0.072	42				
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.02	0	0.8	0.8	0	<0.02	<0.01	0	<0.02	<0.01	0	0.8	0.89	11				
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	0.34	0.36	6	<0.02	<0.02	0	<0.02	<0.02	0	0.34	0.38	11				
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.02	0	<0.05	<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	<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	<0.02	0	<0.02	<0.01	0	<0.02	<0.01	0	<0.02	<0.01	0				
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01 : 0.02 (Interlab)	0.03	0.02	40	<0.01	0.02	67	16.7	18.1	8	0.03	<0.02	40	<0.01	<0.02	0	16.7	14	18				
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	0.02	0.03	40	<0.01	<0.01	0	0.57	0.59	3	0.02	0.022	10	<0.01	<0.01	0	0.57	0.58	2				
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	0	<0.01	0.01	0	4.91	4.99	2	<0.01	<0.01	0	<0.01	<0.01	0	4.91	3.7	28				

**High RPDs are in bold (Acceptable RPDs for each EQL multiolier ranoe 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

Field QA/QC

Lab Report Number	ES2412006	ES2412006
Field ID	0990_QC300_240410	0990_QC302_240410
Sampled Date	10/04/2024	10/04/2024
Sample Type	Rinsate	Rinsate

Analyte	Units	LOR		
PFAS Full Suite				
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MFOSAA)	µg/L	0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.1	<0.1	<0.1
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05	<0.05
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02
Sum of PFAS	µg/L	0.01	<0.01	<0.01
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01
Perfluorooctanoic Acid (PFOA)	µg/L	0.01	<0.01	<0.01
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01

Appendix F

Chain of Custody

CHAIN OF CUSTODY

ALS COC#: 63700 — ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

SITE: Private Property Sampling

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_OTH117_240213		13/02/2024 08:57 AM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0990_OTH118_240214		14/02/2024 10:13 AM	WATER	ALS: 2 Non ALS: 0	No	X		
003	0990_OTH119_240212		13/02/2024 01:00 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0990_POT112_240213		13/02/2024 10:57 AM	WATER	ALS: 2 Non ALS: 0	No	X		
005	0990_POT113_240213		13/02/2024 11:08 AM	WATER	ALS: 2 Non ALS: 0	No	X		
006	0990_POT114_240214		14/02/2024 09:51 AM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_POT120_240214		14/02/2024 10:37 AM	WATER	ALS: 2 Non ALS: 0	No	X		

Environmental Division Sydney

Work Order Reference

ES2404922

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

COC#: 63700 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 606125613.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_POT121_240213		13/02/2024 10:16 AM	WATER	ALS: 2 Non ALS: 0	No	X		
009	0990_POT124_240214		14/02/2024 09:17 AM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_POT125_240213		13/02/2024 01:24 PM	WATER	ALS: 2 Non ALS: 0	No	X		
011	0990_POT127_240214		14/02/2024 10:33 AM	WATER	ALS: 2 Non ALS: 0	No	X		
012	0990_POT128_240212		13/02/2024 12:06 PM	WATER	ALS: 2 Non ALS: 0	No	X		
013	0990_POT129_240213		13/02/2024 11:30 AM	WATER	ALS: 2 Non ALS: 0	No	X		
014	0990_POT130_240214		14/02/2024 09:59 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 63700 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Water WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_ROT131_240213		13/02/2024 01:44 PM	WATER	ALS: 2 Non ALS: 0	No	X		
016	0990_ROT198_240214		14/02/2024 09:28 AM	WATER	ALS: 2 Non ALS: 0	No	X		
017	0990_ROT201_240213		13/02/2024 09:35 AM	WATER	ALS: 2 Non ALS: 0	No	X		
018	0990_QC130_240213		13/02/2024 10:52 AM	WATER	ALS: 2 Non ALS: 0	No	X		
019	0990_QC131_240213		13/02/2024 01:11 PM	WATER	ALS: 2 Non ALS: 0	No	X		
020	0990_QC230_240213		13/02/2024 10:52 AM	WATER	ALS: 2 Non ALS: 0	No	X		
021	0990_QC231_240213		13/02/2024 01:11 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 63700 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0000_PFASOMP_24

[redacted]

ORDER NO: 60612761/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
023	0990_DC330_240213		14/02/2024 11:51 AM	WATER	ALS: 2 Non ALS: 0	No	X		
025	0990_DC331_240214		14/02/2024 11:51 AM	WATER	ALS: 2 Non ALS: 0	No	X		
024	0990_DC430_240213		14/02/2024 11:52 AM	WATER	ALS: 2 Non ALS: 0	No	X		
025	0990_DC431_240214		14/02/2024 11:52 AM	WATER	ALS: 2 Non ALS: 0	No	X		
026	0990_DC530_240213		14/02/2024 11:53 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 63700 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 606125617.1

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	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:

[redacted]

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0990_OTH117_240213	HDPE (no PTFE)	20 mL	00350822015783	Grey	No	
001	0990_OTH117_240213	HDPE (no PTFE)	20 mL	00350822016382	Grey	No	
002	0990_OTH118_240214	HDPE (no PTFE)	20 mL	00352309065455	Grey	No	
002	0990_OTH118_240214	HDPE (no PTFE)	20 mL	00352309065451	Grey	No	
003	0990_OTH119_240212	HDPE (no PTFE)	20 mL	00352309065581	Grey	No	
003	0990_OTH119_240212	HDPE (no PTFE)	20 mL	00352309065536	Grey	No	
004	0990_POT112_240213	HDPE (no PTFE)	20 mL	00350822015843	Grey	No	
004	0990_POT112_240213	HDPE (no PTFE)	20 mL	00350822016158	Grey	No	
005	0990_POT113_240213	HDPE (no PTFE)	20 mL	00351221011476	Grey	No	
005	0990_POT113_240213	HDPE (no PTFE)	20 mL	00351221011717	Grey	No	
006	0990_POT114_240214	HDPE (no PTFE)	20 mL	00350822016328	Grey	No	
006	0990_POT114_240214	HDPE (no PTFE)	20 mL	00350822016644	Grey	No	
007	0990_POT120_240214	HDPE (no PTFE)	20 mL	00352309065617	Grey	No	
007	0990_POT120_240214	HDPE (no PTFE)	20 mL	00352309065822	Grey	No	
008	0990_POT121_240213	HDPE (no PTFE)	20 mL	00350822016489	Grey	No	
008	0990_POT121_240213	HDPE (no PTFE)	20 mL	00350822015822	Grey	No	
009	0990_POT124_240214	HDPE (no PTFE)	20 mL	00351221011681	Grey	No	
009	0990_POT124_240214	HDPE (no PTFE)	20 mL	00351221011733	Grey	No	
010	0990_POT125_240213	HDPE (no PTFE)	20 mL	00350822015758	Grey	No	
010	0990_POT125_240213	HDPE (no PTFE)	20 mL	00350822016640	Grey	No	
011	0990_POT127_240214	HDPE (no PTFE)	20 mL	00350822015839	Grey	No	
011	0990_POT127_240214	HDPE (no PTFE)	20 mL	00350822016582	Grey	No	
012	0990_POT128_240212	HDPE (no PTFE)	20 mL	00350822016536	Grey	No	
012	0990_POT128_240212	HDPE (no PTFE)	20 mL	00350822016002	Grey	No	
013	0990_POT129_240213	HDPE (no PTFE)	20 mL	00350822015763	Grey	No	
013	0990_POT129_240213	HDPE (no PTFE)	20 mL	00350822016066	Grey	No	

CHAIN OF CUSTODY

ALS DOC#: 63700 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 606125613.1

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	[redacted] DATE TIME: 15/2/24 1730	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:

[redacted]

014	0990_POT130_240214	HDPE (no PTFE)	20 mL	0035122109301	Grey	No	
014	0990_POT130_240214	HDPE (no PTFE)	20 mL	0035122109288	Grey	No	
015	0990_POT131_240213	HDPE (no PTFE)	20 mL	0035082201614 1	Grey	No	
015	0990_POT131_240213	HDPE (no PTFE)	20 mL	0035082201601 9	Grey	No	
016	0990_POT198_240214	HDPE (no PTFE)	20 mL	0035122101192 1	Grey	No	
016	0990_POT198_240214	HDPE (no PTFE)	20 mL	0035122101191 3	Grey	No	
017	0990_POT201_240213	HDPE (no PTFE)	20 mL	0035082201614 5	Grey	No	
017	0990_POT201_240213	HDPE (no PTFE)	20 mL	0035082201607 9	Grey	No	
018	0990_OC130_240213	HDPE (no PTFE)	20 mL	0035082201602 2	Grey	No	
018	0990_OC130_240213	HDPE (no PTFE)	20 mL	0035082201592 1	Grey	No	
019	0990_OC131_240213	HDPE (no PTFE)	20 mL	0035082201638 3	Grey	No	
019	0990_OC131_240213	HDPE (no PTFE)	20 mL	0035082201622 2	Grey	No	
020	0990_OC230_240213	HDPE (no PTFE)	20 mL	0035230906563 3	Grey	No	
020	0990_OC230_240213	HDPE (no PTFE)	20 mL	0035230906551 6	Grey	No	
021	0990_OC231_240213	HDPE (no PTFE)	20 mL	0035122101186 9	Grey	No	
021	0990_OC231_240213	HDPE (no PTFE)	20 mL	0035122101139 4	Grey	No	
022	0990_OC330_240213	HDPE (no PTFE)	20 mL	0035082201579 4	Grey	No	
022	0990_OC330_240213	HDPE (no PTFE)	20 mL	0035082201617 0	Grey	No	
023	0990_OC331_240214	HDPE (no PTFE)	20 mL	0035082201660 7	Grey	No	
023	0990_OC331_240214	HDPE (no PTFE)	20 mL	0035082201657 0	Grey	No	
024	0990_OC430_240213	HDPE (no PTFE)	20 mL	0035230906543 0	Grey	No	
024	0990_OC430_240213	HDPE (no PTFE)	20 mL	0035230906560 6	Grey	No	
025	0990_OC431_240214	HDPE (no PTFE)	20 mL	0035230906572 4	Grey	No	
025	0990_OC431_240214	HDPE (no PTFE)	20 mL	0035230906560 5	Grey	No	
026	0990_OC530_240213	HDPE (no PTFE)	20 mL	0035230906544 2	Grey	No	
026	0990_OC530_240213	HDPE (no PTFE)	20 mL	0035230906544 4	Grey	No	

Total Bottle Count: ALS: 52, Non ALS: 0

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	Jonathan DATE TIME: 18/3/24 1630

TURNAROUND REQUIREMENTS: 2 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:

[redacted]

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_OTH117_240312		12/03/2024 08:49 AM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0990_OTH118_240313		13/03/2024 09:55 AM	WATER	ALS: 2 Non ALS: 0	No	X		
003	0990_OTH119_240312		12/03/2024 01:09 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0990_POT112_240312		12/03/2024 09:21 AM	WATER	ALS: 2 Non ALS: 0	No	X		
005	0990_POT113_240312		12/03/2024 09:32 AM	WATER	ALS: 2 Non ALS: 0	No	X		
006	0990_POT114_240313		13/03/2024 09:22 AM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_POT120_240313		13/03/2024 10:15 AM	WATER	ALS: 2 Non ALS: 0	No	X		

Environmental Division
Sydney
Work Order Reference
ES2408294

Telephone : +61-2-8784 8555

Subcon / Forward / Split WO
Lab / Analysis: NMI
Organised By / Date:
Relinquished By / Date:
Connote / Courier: QC FWD
WO No: ES2408294
Attach PO / Internal Sheet:

CHAIN OF CUSTODY

(ALS) COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_POT121_240312		12/03/2024 09:12 AM	WATER	ALS: 2 Non ALS: 0	No	X		
009	0990_POT124_240313		13/03/2024 09:00 AM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_POT125_240312		12/03/2024 10:24 AM	WATER	ALS: 2 Non ALS: 0	No	X		
011	0990_POT127_240313		13/03/2024 10:01 AM	WATER	ALS: 2 Non ALS: 0	No	X		
012	0990_POT128_240312		12/03/2024 09:45 AM	WATER	ALS: 2 Non ALS: 0	No	X		
013	0990_POT129_240312		12/03/2024 09:54 AM	WATER	ALS: 2 Non ALS: 0	No	X		
014	0990_POT130_240313		13/03/2024 09:46 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0990_POT131_240312		12/03/2024 10:10 AM	WATER	ALS: 2 Non ALS: 0	No	X		
016	0990_POT198_240313		13/03/2024 09:09 AM	WATER	ALS: 2 Non ALS: 0	No	X		
017	0990_POT201_240312		12/03/2024 09:02 AM	WATER	ALS: 2 Non ALS: 0	No	X		
018	0990_QC100_240312		12/03/2024 09:36 AM	WATER	ALS: 2 Non ALS: 0	No	X		
019	0990_QC101_240312		12/03/2024 01:09 PM	WATER	ALS: 2 Non ALS: 0	No	X		
[redacted]	0990_QC200_240312		12/03/2024 09:36 AM	WATER	ALS: 2 Non ALS: 0	No	X		
[redacted]	0990_QC201_240312		12/03/2024 01:09 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
022	0990_QC300_240311		11/03/2024 05:36 PM	WATER	ALS: 2 Non ALS: 0	No	X		
023	0990_QC400_240311		11/03/2024 05:37 PM	WATER	ALS: 2 Non ALS: 0	No	X		
024	0990_QC500_240311		11/03/2024 05:37 PM	WATER	ALS: 2 Non ALS: 0	No	X		
025	0990_POT237_240311		11/03/2024 12:18 PM	WATER	ALS: 2 Non ALS: 0	No	X		
026	0990_SW140_240311		11/03/2024 03:57 PM	WATER	ALS: 2 Non ALS: 0	No	X		
027	0990_SW161_240311		11/03/2024 05:33 PM	WATER	ALS: 2 Non ALS: 0	No	X		
028	0990_SW110_240311		11/03/2024 05:59 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 64829 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
029	0990_SW100_240312		12/03/2024 10:40 AM	WATER	ALS: 2 Non ALS: 0	No	X		
030	0990_SW016_240312		12/03/2024 12:17 PM	WATER	ALS: 2 Non ALS: 0	No	X		
031	0990_OTH114_240312		12/03/2024 12:54 PM	WATER	ALS: 2 Non ALS: 0	No	X		
032	0990_QC102_240312		12/03/2024 02:34 PM	WATER	ALS: 2 Non ALS: 0	No	X		
~~033~~	0990_QC202_240312		12/03/2024 02:34 PM	WATER	ALS: 2 Non ALS: 0	No	X		
034	0990_SW049_240312		12/03/2024 04:16 PM	WATER	ALS: 2 Non ALS: 0	No	X		
035	0990_SW188_240312		12/03/2024 05:08 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
036	0990_SW353_240312		12/03/2024 05:25 PM	WATER	ALS: 2 Non ALS: 0	No	X		
037	0990_QC103_240312		12/03/2024 05:27 PM	WATER	ALS: 2 Non ALS: 0	No	X		
~~038~~	0990_QC203_240312		12/03/2024 05:27 PM	WATER	ALS: 2 Non ALS: 0	No	X		
039	0990_QC301_240312		12/03/2024 05:28 PM	WATER	ALS: 2 Non ALS: 0	No	X		
040	0990_QC401_240312		12/03/2024 05:29 PM	WATER	ALS: 2 Non ALS: 0	No	X		
041	0990_SW021_240312		12/03/2024 05:55 PM	WATER	ALS: 2 Non ALS: 0	No	X		
042	0990_POT236_240313		13/03/2024 10:36 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
043	0990_QC302_240313		13/03/2024 10:46 AM	WATER	ALS: 0 Non ALS: 0	No	X		
044	0990_QC402_240313		13/03/2024 10:46 AM	WATER	ALS: 0 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 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	0990_OTH117_240312	HDPE (no PTFE)	20 mL	00352309080028	Grey	No	
001	0990_OTH117_240312	HDPE (no PTFE)	20 mL	00352309079947	Grey	No	
002	0990_OTH118_240313	HDPE (no PTFE)	20 mL	00350822083640	Grey	No	
002	0990_OTH118_240313	HDPE (no PTFE)	20 mL	00350822083621	Grey	No	
003	0990_OTH119_240312	HDPE (no PTFE)	20 mL	00352309079889	Grey	No	
003	0990_OTH119_240312	HDPE (no PTFE)	20 mL	00352309079859	Grey	No	
004	0990_POT112_240312	HDPE (no PTFE)	20 mL	00352309080076	Grey	No	
004	0990_POT112_240312	HDPE (no PTFE)	20 mL	00352309079850	Grey	No	
005	0990_POT113_240312	HDPE (no PTFE)	20 mL	00352309080060	Grey	No	
005	0990_POT113_240312	HDPE (no PTFE)	20 mL	00352309079854	Grey	No	
006	0990_POT114_240313	HDPE (no PTFE)	20 mL	00350822083776	Grey	No	
006	0990_POT114_240313	HDPE (no PTFE)	20 mL	00350822083671	Grey	No	
007	0990_POT120_240313	HDPE (no PTFE)	20 mL	00350822083721	Grey	No	
007	0990_POT120_240313	HDPE (no PTFE)	20 mL	00350822083772	Grey	No	
008	0990_POT121_240312	HDPE (no PTFE)	20 mL	00352309079840	Grey	No	
008	0990_POT121_240312	HDPE (no PTFE)	20 mL	00352309079966	Grey	No	
009	0990_POT124_240313	HDPE (no PTFE)	20 mL	00350822083780	Grey	No	
009	0990_POT124_240313	HDPE (no PTFE)	20 mL	00350822083788	Grey	No	
010	0990_POT125_240312	HDPE (no PTFE)	20 mL	00352309079871	Grey	No	
010	0990_POT125_240312	HDPE (no PTFE)	20 mL	00352309079983	Grey	No	
011	0990_POT127_240313	HDPE (no PTFE)	20 mL	00350822083535	Grey	No	
011	0990_POT127_240313	HDPE (no PTFE)	20 mL	00350822083710	Grey	No	
012	0990_POT128_240312	HDPE (no PTFE)	20 mL	00352309080073	Grey	No	
012	0990_POT128_240312	HDPE (no PTFE)	20 mL	00352309080068	Grey	No	
013	0990_POT129_240312	HDPE (no PTFE)	20 mL	00352309079994	Grey	No	
013	0990_POT129_240312	HDPE (no PTFE)	20 mL	00352309079937	Grey	No	

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 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:

[redacted]

014	0990_POT130_240313	HDPE (no PTFE)	20 mL	00350822083820	Grey	No	
014	0990_POT130_240313	HDPE (no PTFE)	20 mL	00350822083670	Grey	No	
015	0990_POT131_240312	HDPE (no PTFE)	20 mL	00352309079980	Grey	No	
015	0990_POT131_240312	HDPE (no PTFE)	20 mL	00352309080038	Grey	No	
016	0990_POT198_240313	HDPE (no PTFE)	20 mL	00350822083532	Grey	No	
016	0990_POT198_240313	HDPE (no PTFE)	20 mL	00350822083724	Grey	No	
017	0990_POT201_240312	HDPE (no PTFE)	20 mL	00352309079959	Grey	No	
017	0990_POT201_240312	HDPE (no PTFE)	20 mL	00352309079833	Grey	No	
018	0990_QC100_240312	HDPE (no PTFE)	20 mL	00352309080110	Grey	No	
018	0990_QC100_240312	HDPE (no PTFE)	20 mL	00352309080010	Grey	No	
019	0990_QC101_240312	HDPE (no PTFE)	20 mL	00352309079875	Grey	No	
019	0990_QC101_240312	HDPE (no PTFE)	20 mL	00352309079892	Grey	No	
020	0990_QC200_240312	HDPE (no PTFE)	20 mL	00352309080020	Grey	No	
020	0990_QC200_240312	HDPE (no PTFE)	20 mL	00352309080069	Grey	No	
021	0990_QC201_240312	HDPE (no PTFE)	20 mL	00352309079851	Grey	No	
021	0990_QC201_240312	HDPE (no PTFE)	20 mL	00352309080116	Grey	No	
022	0990_QC300_240311	HDPE (no PTFE)	20 mL	00352309079828	Grey	No	
022	0990_QC300_240311	HDPE (no PTFE)	20 mL	00352309080056	Grey	No	
023	0990_QC400_240311	HDPE (no PTFE)	20 mL	00352309079839	Grey	No	
023	0990_QC400_240311	HDPE (no PTFE)	20 mL	00352309079841	Grey	No	
024	0990_QC500_240311	HDPE (no PTFE)	20 mL	00352309080104	Grey	No	
024	0990_QC500_240311	HDPE (no PTFE)	20 mL	00352309080002	Grey	No	
025	0990_POT237_240311	HDPE (no PTFE)	20 mL	00352309079919	Grey	No	
025	0990_POT237_240311	HDPE (no PTFE)	20 mL	00352309079894	Grey	No	
026	0990_SW140_240311	HDPE (no PTFE)	20 mL	00352309079997	Grey	No	
026	0990_SW140_240311	HDPE (no PTFE)	20 mL	00352309080084	Grey	No	
027	0990_SW161_240311	HDPE (no PTFE)	20 mL	00352309079921	Grey	No	

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 2 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:			

027	0990_SW161_240311	HDPE (no PTFE)	20 mL	00352309079869	Grey	No	
028	0990_SW110_240311	HDPE (no PTFE)	20 mL	00352309079936	Grey	No	
028	0990_SW110_240311	HDPE (no PTFE)	20 mL	00352309079941	Grey	No	
029	0990_SW100_240312	HDPE (no PTFE)	20 mL	00352309080035	Grey	No	
029	0990_SW100_240312	HDPE (no PTFE)	20 mL	00352309079969	Grey	No	
030	0990_SW016_240312	HDPE (no PTFE)	20 mL	00352309080001	Grey	No	
030	0990_SW016_240312	HDPE (no PTFE)	20 mL	00352309079831	Grey	No	
031	0990_OTH114_240312	HDPE (no PTFE)	20 mL	00352309079878	Grey	No	
031	0990_OTH114_240312	HDPE (no PTFE)	20 mL	00352309079986	Grey	No	
032	0990_QC102_240312	HDPE (no PTFE)	20 mL	00352309080007	Grey	No	
032	0990_QC102_240312	HDPE (no PTFE)	20 mL	00352309079923	Grey	No	
033	0990_QC202_240312	HDPE (no PTFE)	20 mL	00352309080006	Grey	No	
033	0990_QC202_240312	HDPE (no PTFE)	20 mL	00352309080024	Grey	No	
034	0990_SW049_240312	HDPE (no PTFE)	20 mL	00350822083761	Grey	No	
034	0990_SW049_240312	HDPE (no PTFE)	20 mL	00350822083730	Grey	No	
035	0990_SW188_240312	HDPE (no PTFE)	20 mL	00350822083659	Grey	No	
035	0990_SW188_240312	HDPE (no PTFE)	20 mL	00350822083666	Grey	No	
036	0990_SW350_240312	HDPE (no PTFE)	20 mL	00350822083689	Grey	No	
036	0990_SW350_240312	HDPE (no PTFE)	20 mL	00350822083806	Grey	No	
037	0990_QC103_240312	HDPE (no PTFE)	20 mL	00350822083789	Grey	No	
037	0990_QC103_240312	HDPE (no PTFE)	20 mL	00350822083740	Grey	No	
038	0990_QC203_240312	HDPE (no PTFE)	20 mL	00350822083694	Grey	No	
038	0990_QC203_240312	HDPE (no PTFE)	20 mL	00350822083779	Grey	No	
039	0990_QC301_240312	HDPE (no PTFE)	20 mL	00350822083594	Grey	No	
039	0990_QC301_240312	HDPE (no PTFE)	20 mL	00350822083658	Grey	No	
040	0990_QC401_240312	HDPE (no PTFE)	20 mL	00350822083698	Grey	No	
040	0990_QC401_240312	HDPE (no PTFE)	20 mL	00350822083719	Grey	No	

CHAIN OF CUSTODY

COC#: 64829 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASOMP_24

[redacted]

ORDER NO: 60612561/3.1

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 15/3/24 1630

TURNAROUND REQUIREMENTS : 2 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:

041	0990_SW021_240312	HDPE (no PTFE)	20 mL	00350822083650	Grey	No	
041	0990_SW021_240312	HDPE (no PTFE)	20 mL	00350822083632	Grey	No	
042	0990_POT236_240313	HDPE (no PTFE)	20 mL	00350822083627	Grey	No	
042	0990_POT236_240313	HDPE (no PTFE)	20 mL	00350822083735	Grey	No	

Total Bottle Count: ALS: 84, Non ALS: 0

CHAIN OF CUSTODY

COC#: 64830 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

[redacted]

ORDER NO: 60676801

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 13/3/24 1630

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:			

[redacted]

Environmental Division
Sydney
Work Order Reference
ES2408288

Telephone : - 61-2-8784 8555

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0990_MW406_240313		13/03/2024 02:46 PM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0990_MW227_240312		12/03/2024 03:08 PM	WATER	ALS: 2 Non ALS: 0	No	X		Sal 1.533
003	0990_MW145I_240312		12/03/2024 03:14 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0990_MW147_240312		12/03/2024 02:53 PM	WATER	ALS: 2 Non ALS: 0	No	X		
005	0990_MW149_240312		12/03/2024 02:52 PM	WATER	ALS: 2 Non ALS: 0	No	X		
006	0990_MW126D_240116		12/03/2024 03:18 PM	WATER	ALS: 2 Non ALS: 0	No	X		
007	0990_MW126I_240116		12/03/2024 03:17 PM	WATER	ALS: 2 Non ALS: 0	No	X		

Subcon (Forwarded) opal WO
Lab / Analysis: NMI
Organised By / Date:
Relinquished By / Date:
Connote / Courier: QC FWD
WO No: ES2408288
Attach By PO / Internal Sheet:

CHAIN OF CUSTODY

COC#: 64830 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

[redacted]

ORDER NO: 60676801

[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 DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0990_QC100_240312		12/03/2024 02:57 PM	WATER	ALS: 2 Non ALS: 0	No	X		
~~009~~	0990_QC200_240312		12/03/2024 02:57 PM	WATER	ALS: 2 Non ALS: 0	No	X		
010	0990_QC300_240312		13/03/2024 02:44 PM	WATER	ALS: 2 Non ALS: 0	No	X		
011	0990_QC400_240312		13/03/2024 02:45 PM	WATER	ALS: 2 Non ALS: 0	No	X		
012	0990_QC500_240312		13/03/2024 02:45 PM	WATER	ALS: 2 Non ALS: 0	No	X		
013	0990_SW381_240312		12/03/2024 04:17 PM	WATER	ALS: 2 Non ALS: 0	No	X		
014	0990_SW368_240312		12/03/2024 04:19 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 64830 ALS Laboratory: ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

[redacted]

ORDER NO: 60676801

[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	0990_MW406_240313	HDPE (no PTFE)	20 mL	00352309079886	Grey	No	
001	0990_MW406_240313	HDPE (no PTFE)	20 mL	00352309079876	Grey	No	
002	0990_MW227_240312	HDPE (no PTFE)	20 mL	00352309080083	Grey	No	
002	0990_MW227_240312	HDPE (no PTFE)	20 mL	00352309080095	Grey	No	
003	0990_MW145I_240312	HDPE (no PTFE)	20 mL	00352309080034	Grey	No	
003	0990_MW145I_240312	HDPE (no PTFE)	20 mL	00352309080022	Grey	No	
004	0990_MW147_240312	HDPE (no PTFE)	20 mL	00352309079982	Grey	No	
004	0990_MW147_240312	HDPE (no PTFE)	20 mL	00352309079910	Grey	No	
005	0990_MW149_240312	HDPE (no PTFE)	20 mL	00352309079943	Grey	No	
005	0990_MW149_240312	HDPE (no PTFE)	20 mL	00352309079968	Grey	No	
006	0990_MW126D_240116	HDPE (no PTFE)	20 mL	00350822083816	Grey	No	
006	0990_MW126D_240116	HDPE (no PTFE)	20 mL	00350822083677	Grey	No	
007	0990_MW126I_240116	HDPE (no PTFE)	20 mL	00350822083574	Grey	No	
007	0990_MW126I_240116	HDPE (no PTFE)	20 mL	00350822083763	Grey	No	
008	0990_QC100_240312	HDPE (no PTFE)	20 mL	00352309079875	Grey	No	
008	0990_QC100_240312	HDPE (no PTFE)	20 mL	00352309079892	Grey	No	
009	0990_QC200_240312	HDPE (no PTFE)	20 mL	00352309080024	Grey	No	
009	0990_QC200_240312	HDPE (no PTFE)	20 mL	00352309080006	Grey	No	
010	0990_QC300_240312	HDPE (no PTFE)	20 mL	00350822083554	Grey	No	
010	0990_QC300_240312	HDPE (no PTFE)	20 mL	00350822083593	Grey	No	
011	0990_QC400_240312	HDPE (no PTFE)	20 mL	00350822083637	Grey	No	
011	0990_QC400_240312	HDPE (no PTFE)	20 mL	00350822083635	Grey	No	
012	0990_QC500_240312	HDPE (no PTFE)	20 mL	00350822083739	Grey	No	
012	0990_QC500_240312	HDPE (no PTFE)	20 mL	00350822083653	Grey	No	
013	0990_SW381_240312	HDPE (no PTFE)	20 mL	00350822083611	Grey	No	
013	0990_SW381_240312	HDPE (no PTFE)	20 mL	00350822083630	Grey	No	

CHAIN OF CUSTODY

COC#: 64830 *ALS Laboratory:* ES Sydney Environmental

CLIENT: AECOMAU - AECOM Australia Pty Ltd

PROJECT: NT_0990_PFASMGMT_24

[redacted]

ORDER NO: 60676801

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	[redacted] DATE TIME: 18/3/24 1630

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:

014	0990_SW368_240312	HDPE (no PTFE)	20 mL	0035822083654	Grey	No	
014	0990_SW368_240312	HDPE (no PTFE)	20 mL	0035822083729	Grey	No	

Total Bottle Count: ALS: 28, Non ALS: 0

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

CLIENT: AECOM	TURNAROUND REQUIREMENTS: [redacted] Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: [redacted]	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP_24	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
[redacted]		Other comment:

RELINQUISHED BY: [redacted]	RECEIVED BY: 11:27a	RELINQUISHED BY:	RECEIVED BY: [redacted]
DATE/TIME: [redacted] - 12/4	DATE/TIME: 12/4	DATE/TIME:	16/4/24 1545

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).						Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS full suite						
1	0990_OTH117_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
2	0990_POT201_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
3	0990_POT121_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
4	0990_POT112_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
5	0990_POT113_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
6	0990_POT128_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
7	0990_POT129_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
8	0990_OTH119_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
9	0990_POT131_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
10	0990_POT125_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
11	0990_POT126_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
12	0990_OTH130_240410	10/04/2024	W	2 x PFAS 20ml	2	X						
				TOTAL	24							

NMI

LAB OF ORIGIN DARWIN

Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.: QC FWD ES2412006

Environmental Division
Sydney
Work Order Reference
ES2412006

Telephone : + 61-2-8784 8555

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GOLD COAST 85 Callemondah Drive Clinton QLD 4680 Ph: 07 3471 8096 E: goldcoast@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 3-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: perth@alsglobal.com

SINGAPORE 27 Sunview Road Eunos 627615 Ph: 65 6733 1605 F: mailbox.mail@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@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: AECOM	TURNAROUND REQUIREMENTS : [redacted] Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: [redacted]	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes No N/A
PROJECT: NT_0990_PFASOMP_24	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt:	°C
[redacted]		Other comment:	

RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:	RECEIVED BY:
[redacted]	[redacted]		
DATE/TIME:	DATE/TIME: 12/4	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS full suite								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	0990_OTH118_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
14	0990_POT127_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
15	0990_POT120_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
16	0990_POT124_240411	11/04/2024	W	2 x PFAS 20ml	2	X								
17	0990_POT198_240411	11/04/2024	W	2 x PFAS 20ml	2	X								
18	0990_POT114_240411	11/04/2024	W	2 x PFAS 20ml	2	X								
19	0990_POT130_240411	11/04/2024	W	2 x PFAS 20ml	2	X								
				TOTAL	14									

LAB OF ORIGIN: DARWIN

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

CAIRNS 14 Commercial Drive Portsmith QLD 4870 Ph: 07 4035 4077 E: cairns@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 3-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

BRISBANE 27 Sydney Road Manly NSW 2095 Ph: 02 8572 6700 E: sydney.east@alsglobal.com

NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

ALBURY 14 Dalton Street Albury NSW 2640 Ph: 02 6041 3074 E: samples.albury@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: samples.townsville@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: samples.wollongong@alsglobal.com

CLIENT: AECOM	TURNAROUND REQUIREMENTS: [redacted] Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Darwin	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes No N/A
PROJECT: NT_0990_PFASOMP_24	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt:	°C
[redacted]		Other comment:	

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 12/4	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS full suite	HOLD							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
20	0990_SS779_240410	10/04/2024	S	1x PFAS soil jar	1	X								
21	0990_SS780_240410	10/04/2024	S	1x PFAS soil jar	1		X							
22	0990_SS781_240410	10/04/2024	S	1x PFAS soil jar	1		X							
23	0990_POT238_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
24	0990_OTH131_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
25	0990_QC100_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
~~26~~	0990_QC200_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
27 28	0990_QC300_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
28 27	0990_QC400_240410	10/04/2024	W	2 x PFAS 20ml	2		X							
29 28	0990_QC500_240410	10/04/2024	W	2 x PFAS 20ml	2		X							
30 29	0990_QC101_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
~~31~~	0990_QC201_240410	10/04/2024	W	2 x PFAS 20ml	2	X								
				TOTAL	21									

LAB OF ORIGIN: DARWIN

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

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

[redacted]

CLIENT: AECOM	TURNAROUND REQUIREMENTS : [redacted] Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: [redacted]	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: NT_0990_PFASOMP_24	ALS QUOTE NO.: SY/139/19 V3	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 60612561/3.1	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
		Other comment:

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 12/4	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EP231X - PFAS full suite	HOLD							
3430	0990_QC102_240410	10/04/2024	S	1x PFAS soil jar	1	X								
~~34~~	0990_QC202_240410	10/04/2024	S	1x PFAS soil jar	1	X								
3431	0990_QC302_240410	10/04/2024	W	2 x PFAS 28ml	2	X								
3432	0990_QC402_240410	10/04/2024	W	2 x PFAS 28ml	2		X							
3433	0990_SW153_240410	10/04/2024	W	2 x PFAS 28ml	2	X								
3434	0990_SW108_240410	10/04/2024	W	2 x PFAS 28ml	2	X								
				TOTAL	10									

LAB OF ORIGIN: DARWIN

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.

Appendix G

Lab Reports

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2404922**

Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	[redacted]
Address		Address	
E-mail		E-mail	
Telephone	: ----	Telephone	
Facsimile	: ----	Facsimile	
Project	: NT_0990_PFASOMP_24	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: 63700	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Private Property Sampling		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Feb-2024 17:30	Issue Date	: 15-Feb-2024
Client Requested Due Date	: 21-Feb-2024	Scheduled Reporting Date	: **21-Feb-2024**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.1'C, 19.4'C & 18.6'C
Receipt Detail	: BAG	No. of samples received / analysed	: 26 / 26

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)
ES2404922-001	13-Feb-2024 08:57	0990_OTH117_240213	✓
ES2404922-002	14-Feb-2024 10:13	0990_OTH118_240214	✓
ES2404922-003	13-Feb-2024 13:00	0990_OTH119_240212	✓
ES2404922-004	13-Feb-2024 10:57	0990_POT112_240213	✓
ES2404922-005	13-Feb-2024 11:08	0990_POT113_240213	✓
ES2404922-006	14-Feb-2024 09:51	0990_POT114_240214	✓
ES2404922-007	14-Feb-2024 10:37	0990_POT120_240214	✓
ES2404922-008	13-Feb-2024 10:16	0990_POT121_240213	✓
ES2404922-009	14-Feb-2024 09:17	0990_POT124_240214	✓
ES2404922-010	13-Feb-2024 13:24	0990_POT125_240213	✓
ES2404922-011	14-Feb-2024 10:33	0990_POT127_240214	✓
ES2404922-012	13-Feb-2024 12:06	0990_POT128_240212	✓
ES2404922-013	13-Feb-2024 11:30	0990_POT129_240213	✓
ES2404922-014	14-Feb-2024 09:59	0990_POT130_240214	✓
ES2404922-015	13-Feb-2024 13:44	0990_POT131_240213	✓
ES2404922-016	14-Feb-2024 09:28	0990_POT198_240214	✓
ES2404922-017	13-Feb-2024 09:35	0990_POT201_240213	✓
ES2404922-018	13-Feb-2024 10:52	0990_QC130_240213	✓
ES2404922-019	13-Feb-2024 13:11	0990_QC131_240213	✓
ES2404922-020	13-Feb-2024 10:52	0990_QC230_240213	✓
ES2404922-021	13-Feb-2024 13:11	0990_QC231_240213	✓
ES2404922-022	14-Feb-2024 11:51	0990_QC330_240213	✓
ES2404922-023	14-Feb-2024 11:51	0990_QC331_240214	✓
ES2404922-024	14-Feb-2024 11:52	0990_QC430_240213	✓
ES2404922-025	14-Feb-2024 11:52	0990_QC431_240214	✓
ES2404922-026	14-Feb-2024 11:53	0990_QC530_240213	✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

CERTIFICATE OF ANALYSIS

Work Order	: **ES2404922**	Page	: 1 of 15
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	: [redacted]
Address		Address	:
Telephone	:	Telephone	:
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Feb-2024 17:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 16-Feb-2024
C-O-C number	: 63700	Issue Date	: 21-Feb-2024 10:56
Sampler	: [redacted]		
Site	: Private Property Sampling		
Quote number	: SY/139/19 V3		
No. of samples received	: 26		
No. of samples analysed	: 26		

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]		

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	0990_OTH117_240213	0990_OTH118_240214	0990_OTH119_240212	0990_POT112_240213	0990_POT113_240213
				Sampling date / time	13-Feb-2024 08:57	14-Feb-2024 10:13	13-Feb-2024 13:00	13-Feb-2024 10:57	13-Feb-2024 11:08
					ES2404922-001	ES2404922-002	ES2404922-003	ES2404922-004	ES2404922-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.03**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.03**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.01**	<0.01	**0.04**	**0.04**	**0.15**
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	**0.02**	**0.08**	**0.03**	**0.21**
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	**0.06**
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	**0.01**
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH117_240213	0990_OTH118_240214	0990_OTH119_240212	0990_POT112_240213	0990_POT113_240213
				Sampling date / time	13-Feb-2024 08:57	14-Feb-2024 10:13	13-Feb-2024 13:00	13-Feb-2024 10:57	13-Feb-2024 11:08
Compound	CAS Number	LOR	Unit		ES2404922-001	ES2404922-002	ES2404922-003	ES2404922-004	ES2404922-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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**	**0.02**	**0.12**	**0.07**	**0.49**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	**0.02**	**0.12**	**0.07**	**0.36**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	**0.02**	**0.12**	**0.07**	**0.46**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**93.4**	**100**	**97.9**	**101**
13C8-PFOA	----	0.02	%		**102**	**102**	**108**	**104**	**107**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT114_240214	0990_POT120_240214	0990_POT121_240213	0990_POT124_240214	0990_POT125_240213
				Sampling date / time	14-Feb-2024 09:51	14-Feb-2024 10:37	13-Feb-2024 10:16	14-Feb-2024 09:17	13-Feb-2024 13:24
					ES2404922-006	ES2404922-007	ES2404922-008	ES2404922-009	ES2404922-010
					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	**0.02**	**0.02**	<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	**0.02**	**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	<0.1	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT114_240214	0990_POT120_240214	0990_POT121_240213	0990_POT124_240214	0990_POT125_240213
				Sampling date / time	14-Feb-2024 09:51	14-Feb-2024 10:37	13-Feb-2024 10:16	14-Feb-2024 09:17	13-Feb-2024 13:24
Compound	CAS Number	LOR	Unit		ES2404922-006	ES2404922-007	ES2404922-008	ES2404922-009	ES2404922-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.04**	**0.06**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.04**	**0.06**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.04**	**0.06**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.1**	**98.5**	**99.7**	**100**	**105**
13C8-PFOA	----	0.02	%		**105**	**108**	**105**	**107**	**109**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT127_240214	0990_POT128_240212	0990_POT129_240213	0990_POT130_240214	0990_POT131_240213
				Sampling date / time	14-Feb-2024 10:33	13-Feb-2024 12:06	13-Feb-2024 11:30	14-Feb-2024 09:59	13-Feb-2024 13:44
					ES2404922-011	ES2404922-012	ES2404922-013	ES2404922-014	ES2404922-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.01**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.03**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT127_240214	0990_POT128_240212	0990_POT129_240213	0990_POT130_240214	0990_POT131_240213
				Sampling date / time	14-Feb-2024 10:33	13-Feb-2024 12:06	13-Feb-2024 11:30	14-Feb-2024 09:59	13-Feb-2024 13:44
Compound	CAS Number	LOR	Unit		ES2404922-011	ES2404922-012	ES2404922-013	ES2404922-014	ES2404922-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.04**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**99.7**	**98.6**	**98.5**	**101**
13C8-PFOA	----	0.02	%		**106**	**107**	**105**	**102**	**106**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT198_240214	0990_POT201_240213	0990_QC130_240213	0990_QC131_240213	0990_QC230_240213
				Sampling date / time	14-Feb-2024 09:28	13-Feb-2024 09:35	13-Feb-2024 10:52	13-Feb-2024 13:11	13-Feb-2024 10:52
					ES2404922-016	ES2404922-017	ES2404922-018	ES2404922-019	ES2404922-020
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	**0.03**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.03**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.04**	**0.16**	**0.04**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.03**	**0.22**	**0.04**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	**0.06**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT198_240214	0990_POT201_240213	0990_QC130_240213	0990_QC131_240213	0990_QC230_240213
				Sampling date / time	14-Feb-2024 09:28	13-Feb-2024 09:35	13-Feb-2024 10:52	13-Feb-2024 13:11	13-Feb-2024 10:52
Compound	CAS Number	LOR	Unit		ES2404922-016	ES2404922-017	ES2404922-018	ES2404922-019	ES2404922-020
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.07**	**0.51**	**0.08**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.07**	**0.38**	**0.08**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.07**	**0.48**	**0.08**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.7**	**104**	**97.3**	**99.3**	**100**
13C8-PFOA	----	0.02	%		**105**	**104**	**103**	**106**	**99.3**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC231_240213	0990_QC330_240213	0990_QC331_240214	0990_QC430_240213	0990_QC431_240214
				Sampling date / time	13-Feb-2024 13:11	14-Feb-2024 11:51	14-Feb-2024 11:51	14-Feb-2024 11:52	14-Feb-2024 11:52
Compound	CAS Number	LOR	Unit		ES2404922-021	ES2404922-022	ES2404922-023	ES2404922-024	ES2404922-025
					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		**0.14**	<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		**0.20**	<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		**0.05**	<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		**0.01**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC231_240213	0990_QC330_240213	0990_QC331_240214	0990_QC430_240213	0990_QC431_240214
				Sampling date / time	13-Feb-2024 13:11	14-Feb-2024 11:51	14-Feb-2024 11:51	14-Feb-2024 11:52	14-Feb-2024 11:52
Compound	CAS Number	LOR	Unit		ES2404922-021	ES2404922-022	ES2404922-023	ES2404922-024	ES2404922-025
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**0.44**	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.34**	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.42**	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**106**	**102**	**102**	**105**
13C8-PFOA	----	0.02	%		**100**	**101**	**99.9**	**103**	**101**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC530_240213	----	----	----	----
				Sampling date / time	14-Feb-2024 11:53	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2404922-026	--------	--------	--------	--------
					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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC530_240213	----	----	----	----
				Sampling date / time	14-Feb-2024 11:53	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2404922-026	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<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	%		**101**	----	----	----	----
13C8-PFOA	----	0.02	%		**106**	----	----	----	----

Surrogate Control Limits

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

QUALITY CONTROL REPORT

Work Order	: **ES2404922**	Page	: 1 of 8
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	[redacted]
Address		Address	
Telephone	: ----	Telephone	
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Feb-2024
Order number	: 60612561/3.1	Date Analysis Commenced	: 16-Feb-2024
C-O-C number	: 63700	Issue Date	: 21-Feb-2024
Sampler	: [redacted]		
Site	: Private Property Sampling		
Quote number	: SY/139/19 V3		
No. of samples received	: 26		
No. of samples analysed	: 26		

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]		

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: 5606449)									
ES2404973-004	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.61	0.61	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	5.58	5.75	3.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.28	0.28	0.0	0% - 50%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.10	0.10	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2404973-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.25	0.24	4.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	2.20	2.11	4.4	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	0.03	0.03	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: 5606449)									
ES2404973-004	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.07	0.07	0.0	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	0.15	0.15	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	0.03	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: 5606449) - continued									
ES2404973-004	Anonymous	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
ES2404973-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.09	0.08	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: 5606449)									
ES2404973-004	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
ES2404973-009	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

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: 5606449)									
ES2404973-004	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
ES2404973-009	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: 5606449)									
ES2404973-004	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	6.95	7.18	3.3	0% - 20%
ES2404973-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.70	2.61	3.4	0% - 20%

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

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

Sub-Matrix: **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: 5605775)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	91.8	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	100	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	94.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	96.4	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	89.0	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5606449)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	113	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	101	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	101	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	96.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5605775)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	90.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	108	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	112	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	108	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: 5606449)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	94.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	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: 5606449) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	108	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	112	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	111	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	114	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	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: 5605775)								
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	101	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	104	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	118	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	100	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5606449)								
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	123	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	108	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	99.0	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	110	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	100	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5605775)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	105	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	108	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	104	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	96.3	71.4	144

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: 5606449)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	104	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	116	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	126	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5606449)							
ES2404973-007	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	123	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	94.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	95.8	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	95.4	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	84.2	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5606449)							
ES2404973-007	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	95.1	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	101	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	105	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	103	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	111	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	106	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	103	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	113	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	97.9	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	112	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5606449)							
ES2404973-007	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	113	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	93.4	62.6	147

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: 5606449) - continued							
ES2404973-007	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	109	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.1	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	115	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5606449)							
ES2404973-007	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	85.8	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	96.3	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	113	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	112	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2404922**	Page	: 1 of 6
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Telephone	: [redacted]
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Feb-2024
Site	: Private Property Sampling	Issue Date	: 21-Feb-2024
Sampler	: [redacted]	No. of samples received	: 26
Order number	: 60612561/3.1	No. of samples analysed	: 26

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	ES2404973--007	Anonymous	**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
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	5.26	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	38	2.63	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)							
0990_OTH117_240213, 0990_OTH119_240212, 0990_POT112_240213, 0990_POT113_240213, 0990_POT121_240213, 0990_POT125_240213, 0990_POT128_240212, 0990_POT129_240213, 0990_POT131_240213, 0990_POT201_240213, 0990_QC130_240213, 0990_QC131_240213, 0990_QC230_240213, 0990_QC231_240213	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
HDPE (no PTFE) (EP231X)							
0990_OTH118_240214, 0990_POT114_240214, 0990_POT120_240214, 0990_POT124_240214, 0990_POT127_240214, 0990_POT130_240214, 0990_POT198_240214, 0990_QC330_240213, 0990_QC331_240214, 0990_QC430_240213, 0990_QC431_240214, 0990_QC530_240213	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0990_OTH117_240213,	0990_OTH119_240212,	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
0990_POT112_240213,	0990_POT113_240213,							
0990_POT121_240213,	0990_POT125_240213,							
0990_POT128_240212,	0990_POT129_240213,							
0990_POT131_240213,	0990_POT201_240213,							
0990_QC130_240213,	0990_QC131_240213,							
0990_QC230_240213,	0990_QC231_240213							
HDPE (no PTFE) (EP231X)								
0990_OTH118_240214,	0990_POT114_240214,	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓
0990_POT120_240214,	0990_POT124_240214,							
0990_POT127_240214,	0990_POT130_240214,							
0990_POT198_240214,	0990_QC330_240213,							
0990_QC331_240214,	0990_QC430_240213,							
0990_QC431_240214,	0990_QC530_240213							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0990_OTH117_240213,	0990_OTH119_240212,	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
0990_POT112_240213,	0990_POT113_240213,							
0990_POT121_240213,	0990_POT125_240213,							
0990_POT128_240212,	0990_POT129_240213,							
0990_POT131_240213,	0990_POT201_240213,							
0990_QC130_240213,	0990_QC131_240213,							
0990_QC230_240213,	0990_QC231_240213							
HDPE (no PTFE) (EP231X)								
0990_OTH118_240214,	0990_POT114_240214,	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓
0990_POT120_240214,	0990_POT124_240214,							
0990_POT127_240214,	0990_POT130_240214,							
0990_POT198_240214,	0990_QC330_240213,							
0990_QC331_240214,	0990_QC430_240213,							
0990_QC431_240214,	0990_QC530_240213							

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)								
0990_OTH117_240213,	0990_OTH119_240212,	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
0990_POT112_240213,	0990_POT113_240213,							
0990_POT121_240213,	0990_POT125_240213,							
0990_POT128_240212,	0990_POT129_240213,							
0990_POT131_240213,	0990_POT201_240213,							
0990_QC130_240213,	0990_QC131_240213,							
0990_QC230_240213,	0990_QC231_240213							
HDPE (no PTFE) (EP231X)								
0990_OTH118_240214,	0990_POT114_240214,	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓
0990_POT120_240214,	0990_POT124_240214,							
0990_POT127_240214,	0990_POT130_240214,							
0990_POT198_240214,	0990_QC330_240213,							
0990_QC331_240214,	0990_QC430_240213,							
0990_QC431_240214,	0990_QC530_240213							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0990_OTH117_240213,	0990_OTH119_240212,	**13-Feb-2024**	**16-Feb-2024**	11-Aug-2024	✓	**20-Feb-2024**	11-Aug-2024	✓
0990_POT112_240213,	0990_POT113_240213,							
0990_POT121_240213,	0990_POT125_240213,							
0990_POT128_240212,	0990_POT129_240213,							
0990_POT131_240213,	0990_POT201_240213,							
0990_QC130_240213,	0990_QC131_240213,							
0990_QC230_240213,	0990_QC231_240213							
HDPE (no PTFE) (EP231X)								
0990_OTH118_240214,	0990_POT114_240214,	**14-Feb-2024**	**16-Feb-2024**	12-Aug-2024	✓	**20-Feb-2024**	12-Aug-2024	✓
0990_POT120_240214,	0990_POT124_240214,							
0990_POT127_240214,	0990_POT130_240214,							
0990_POT198_240214,	0990_QC330_240213,							
0990_QC331_240214,	0990_QC430_240213,							
0990_QC431_240214,	0990_QC530_240213							

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	38	**5.26**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	38	**2.63**	**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 : **ES2408294**

Client	[redacted]	Laboratory	[redacted]
Contact		Contact	
Address		Address	
E-mail		E-mail	
Telephone	: ----	Telephone	
Facsimile	: ----	Facsimile	
Project	: NT_0990_PFASOMP_24	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: 64829	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: PP, twice wet SW, biannual SW and GW		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Mar-2024 16:30	Issue Date	: 19-Mar-2024
Client Requested Due Date	: 20-Mar-2024	Scheduled Reporting Date	: **22-Mar-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 24.1'C
Receipt Detail	:	No. of samples received / analysed	: 40 / 39

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
- 19/03/2024 - This is an updated SRN which indicates the new scheduled release date for this work order.
- **QC101 placed on hold until confirmed.**
- **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.**
- **QC Forward analysis will be conducted by NMI.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2408294-001	12-Mar-2024 07:19	0990_OTH117_240312		✓
ES2408294-002	13-Mar-2024 08:25	0990_OTH118_240313		✓
ES2408294-003	12-Mar-2024 11:39	0990_OTH119_240312		✓
ES2408294-004	12-Mar-2024 07:51	0990_POT112_240312		✓
ES2408294-005	12-Mar-2024 08:02	0990_POT113_240312		✓
ES2408294-006	13-Mar-2024 07:52	0990_POT114_240313		✓
ES2408294-007	13-Mar-2024 08:45	0990_POT120_240313		✓
ES2408294-008	12-Mar-2024 07:42	0990_POT121_240312		✓
ES2408294-009	13-Mar-2024 07:30	0990_POT124_240313		✓
ES2408294-010	12-Mar-2024 08:54	0990_POT125_240312		✓
ES2408294-011	13-Mar-2024 08:31	0990_POT127_240313		✓
ES2408294-012	12-Mar-2024 08:15	0990_POT128_240312		✓
ES2408294-013	12-Mar-2024 08:24	0990_POT129_240312		✓
ES2408294-014	13-Mar-2024 08:16	0990_POT130_240313		✓
ES2408294-015	12-Mar-2024 08:40	0990_POT131_240312		✓
ES2408294-016	13-Mar-2024 07:39	0990_POT198_240313		✓
ES2408294-017	12-Mar-2024 07:32	0990_POT201_240312		✓
ES2408294-018	12-Mar-2024 08:06	0990_QC100_240312		✓
ES2408294-019	12-Mar-2024 11:39	0990_QC101_240312	✓	
ES2408294-022	11-Mar-2024 16:06	0990_QC300_240311		✓
ES2408294-023	11-Mar-2024 16:07	0990_QC400_240311		✓
ES2408294-024	11-Mar-2024 16:07	0990_QC500_240311		✓
ES2408294-025	11-Mar-2024 10:48	0990_POT237_240311		✓
ES2408294-026	11-Mar-2024 14:27	0990_SW140_240311		✓
ES2408294-027	11-Mar-2024 16:03	0990_SW161_240311		✓
ES2408294-028	11-Mar-2024 16:29	0990_SW110_240311		✓
ES2408294-029	12-Mar-2024 09:10	0990_SW100_240312		✓
ES2408294-030	12-Mar-2024 10:47	0990_SW016_240312		✓
ES2408294-031	12-Mar-2024 11:24	0990_OTH114_240312		✓
ES2408294-032	12-Mar-2024 13:04	0990_QC102_240312		✓
ES2408294-034	12-Mar-2024 14:46	0990_SW049_240312		✓
ES2408294-035	12-Mar-2024 15:38	0990_SW188_240312		✓
ES2408294-036	12-Mar-2024 15:55	0990_SW350_240312		✓
ES2408294-037	12-Mar-2024 15:57	0990_QC103_240312		✓
ES2408294-039	12-Mar-2024 15:58	0990_QC301_240312		✓

			(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2408294-040	12-Mar-2024 15:59	0990_QC401_240312		✓
ES2408294-041	12-Mar-2024 16:25	0990_SW021_240312		✓
ES2408294-042	13-Mar-2024 09:06	0990_POT236_240313		✓
ES2408294-043	13-Mar-2024 09:16	0990_QC302_240313		✓
ES2408294-044	13-Mar-2024 09:16	0990_QC402_240313		✓

Proactive Holding Time Report

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

Requested Deliverables

[redacted]

CERTIFICATE OF ANALYSIS

Work Order	: **ES2408294-AA**	Page	: 1 of 21
Client	: [redacted]	Laboratory	: Environmental Division Sydney
Contact	:	Contact	: [redacted]
Address	:	Address	:
Telephone	: ---	Telephone	:
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Mar-2024 16:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 19-Mar-2024
C-O-C number	: 64829	Issue Date	: 22-Mar-2024 16:09
Sampler	: [redacted]		
Site	: PP, twice wet SW, biannual SW and GW		
Quote number	: SY/139/19 V3		
No. of samples received	: 39		
No. of samples analysed	: 39		

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]		

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 QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Results for samples #3 and 18 confirmed by re-analysis.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231X-INJ: The direct injection LCMSMS method may be used where the sample matrix is not suitable for Solid Phase Extraction (e.g. significant particulate load) or where only a single sample container is received.

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_OTH117_240312	0990_OTH118_240313	0990_POT112_240312	0990_POT113_240312	0990_POT114_240313
				Sampling date / time	12-Mar-2024 07:19	13-Mar-2024 08:25	12-Mar-2024 07:51	12-Mar-2024 08:02	13-Mar-2024 07:52
					ES2408294-001	ES2408294-002	ES2408294-004	ES2408294-005	ES2408294-006
					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	**0.03**	**0.09**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.01**	<0.01	**0.02**	**0.14**	**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		<0.01	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH117_240312	0990_OTH118_240313	0990_POT112_240312	0990_POT113_240312	0990_POT114_240313
				Sampling date / time	12-Mar-2024 07:19	13-Mar-2024 08:25	12-Mar-2024 07:51	12-Mar-2024 08:02	13-Mar-2024 07:52
Compound	CAS Number	LOR	Unit		ES2408294-001	ES2408294-002	ES2408294-004	ES2408294-005	ES2408294-006
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.05**	**0.25**	**0.02**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	<0.01	**0.05**	**0.23**	**0.02**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	<0.01	**0.05**	**0.25**	**0.02**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**94.8**	**97.6**	**109**	**93.5**
13C8-PFOA	----	0.02	%		**96.7**	**106**	**103**	**103**	**106**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT120_240313	0990_POT121_240312	0990_POT124_240313	0990_POT125_240312	0990_POT127_240313
				Sampling date / time	13-Mar-2024 08:45	12-Mar-2024 07:42	13-Mar-2024 07:30	12-Mar-2024 08:54	13-Mar-2024 08:31
					ES2408294-007	ES2408294-008	ES2408294-009	ES2408294-010	ES2408294-011
					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		**0.02**	**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**	**0.02**	<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		<0.02	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT120_240313	0990_POT121_240312	0990_POT124_240313	0990_POT125_240312	0990_POT127_240313
				Sampling date / time	13-Mar-2024 08:45	12-Mar-2024 07:42	13-Mar-2024 07:30	12-Mar-2024 08:54	13-Mar-2024 08:31
Compound	CAS Number	LOR	Unit		ES2408294-007	ES2408294-008	ES2408294-009	ES2408294-010	ES2408294-011
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	**0.03**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	**0.03**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	**0.03**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.2**	**88.7**	**100**	**102**	**93.5**
13C8-PFOA	----	0.02	%		**109**	**104**	**103**	**108**	**103**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT128_240312	0990_POT129_240312	0990_POT130_240313	0990_POT131_240312	0990_POT198_240313
				Sampling date / time	12-Mar-2024 08:15	12-Mar-2024 08:24	13-Mar-2024 08:16	12-Mar-2024 08:40	13-Mar-2024 07:39
					ES2408294-012	ES2408294-013	ES2408294-014	ES2408294-015	ES2408294-016
					Result	Result	Result	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		----	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	**0.02**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	<0.02	----	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	<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
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<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
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	----	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT128_240312	0990_POT129_240312	0990_POT130_240313	0990_POT131_240312	0990_POT198_240313
				Sampling date / time	12-Mar-2024 08:15	12-Mar-2024 08:24	13-Mar-2024 08:16	12-Mar-2024 08:40	13-Mar-2024 07:39
					ES2408294-012	ES2408294-013	ES2408294-014	ES2408294-015	ES2408294-016
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
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	----	----	----
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		----	<0.02	----	----	----
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	----	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT128_240312	0990_POT129_240312	0990_POT130_240313	0990_POT131_240312	0990_POT198_240313
				Sampling date / time	12-Mar-2024 08:15	12-Mar-2024 08:24	13-Mar-2024 08:16	12-Mar-2024 08:40	13-Mar-2024 07:39
					ES2408294-012	ES2408294-013	ES2408294-014	ES2408294-015	ES2408294-016
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	----	----	----
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT128_240312	0990_POT129_240312	0990_POT130_240313	0990_POT131_240312	0990_POT198_240313
				Sampling date / time	12-Mar-2024 08:15	12-Mar-2024 08:24	13-Mar-2024 08:16	12-Mar-2024 08:40	13-Mar-2024 07:39
Compound	CAS Number	LOR	Unit		ES2408294-012	ES2408294-013	ES2408294-014	ES2408294-015	ES2408294-016
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
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		----	**0.02**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	**0.02**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	**0.02**	----	----	----
Sum of PFAS	----	0.01	µg/L		<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
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	----	**97.7**	**106**	**97.2**
13C4-PFOS	----	0.02	%		----	**92.8**	----	----	----
13C8-PFOA	----	0.02	%		**101**	----	**105**	**104**	**96.4**
13C8-PFOA	----	0.02	%		----	**98.6**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT201_240312	0990_QC100_240312	0990_QC101_240312	0990_QC300_240311	0990_QC400_240311
				Sampling date / time	12-Mar-2024 07:32	12-Mar-2024 08:06	12-Mar-2024 11:39	11-Mar-2024 16:06	11-Mar-2024 16:07
Compound	CAS Number	LOR	Unit		ES2408294-017	ES2408294-018	ES2408294-019	ES2408294-022	ES2408294-023
					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	**0.04**	<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	**0.05**	**0.02**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT201_240312	0990_QC100_240312	0990_QC101_240312	0990_QC300_240311	0990_QC400_240311
				Sampling date / time	12-Mar-2024 07:32	12-Mar-2024 08:06	12-Mar-2024 11:39	11-Mar-2024 16:06	11-Mar-2024 16:07
Compound	CAS Number	LOR	Unit		ES2408294-017	ES2408294-018	ES2408294-019	ES2408294-022	ES2408294-023
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.09**	**0.03**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.09**	**0.02**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.09**	**0.03**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**100**	**94.0**	**96.8**	**102**	**102**
13C8-PFOA	----	0.02	%		**104**	**103**	**99.6**	**104**	**100**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC500_240311	0990_POT237_240311	0990_SW140_240311	0990_SW161_240311	0990_SW110_240311
				Sampling date / time	11-Mar-2024 16:07	11-Mar-2024 10:48	11-Mar-2024 14:27	11-Mar-2024 16:03	11-Mar-2024 16:29
Compound	CAS Number	LOR	Unit		ES2408294-024	ES2408294-025	ES2408294-026	ES2408294-027	ES2408294-028
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.88**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**3.07**	<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	**0.2**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**0.47**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.10**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**0.16**	<0.01	<0.01
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	**0.04**	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	**0.06**	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	**0.07**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC500_240311	0990_POT237_240311	0990_SW140_240311	0990_SW161_240311	0990_SW110_240311
				Sampling date / time	11-Mar-2024 16:07	11-Mar-2024 10:48	11-Mar-2024 14:27	11-Mar-2024 16:03	11-Mar-2024 16:29
Compound	CAS Number	LOR	Unit		ES2408294-024	ES2408294-025	ES2408294-026	ES2408294-027	ES2408294-028
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.29**	<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	**5.81**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**3.95**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**5.39**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.6**	**104**	**99.9**	**103**	**102**
13C8-PFOA	----	0.02	%		**102**	**102**	**103**	**98.9**	**101**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW100_240312	0990_SW016_240312	0990_OTH114_240312	0990_QC102_240312	0990_SW049_240312
				Sampling date / time	12-Mar-2024 09:10	12-Mar-2024 10:47	12-Mar-2024 11:24	12-Mar-2024 13:04	12-Mar-2024 14:46
Compound	CAS Number	LOR	Unit		ES2408294-029	ES2408294-030	ES2408294-031	ES2408294-032	ES2408294-034
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	**66.4**	**0.10**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	**70.2**	**0.08**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**0.07**	**0.09**	**495**	**0.48**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	**55.4**	**0.03**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**0.12**	**0.14**	**939**	**1.35**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	**11.6**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	**28.2**	**0.06**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	**110**	**0.19**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	**15.0**	**0.03**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	**32.7**	**0.05**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	**0.51**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW100_240312	0990_SW016_240312	0990_OTH114_240312	0990_QC102_240312	0990_SW049_240312
				Sampling date / time	12-Mar-2024 09:10	12-Mar-2024 10:47	12-Mar-2024 11:24	12-Mar-2024 13:04	12-Mar-2024 14:46
Compound	CAS Number	LOR	Unit		ES2408294-029	ES2408294-030	ES2408294-031	ES2408294-032	ES2408294-034
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<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	<0.50	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.50	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.50	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.50	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	**0.19**	**0.23**	**1820**	**2.37**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.19**	**0.23**	**1430**	**1.83**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.19**	**0.23**	**1700**	**2.26**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**103**	**101**	**108**	**96.6**
13C8-PFOA	----	0.02	%		**102**	**99.8**	**100**	**105**	**100**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW188_240312	0990_SW350_240312	0990_QC103_240312	0990_QC301_240312	0990_QC401_240312
				Sampling date / time	12-Mar-2024 15:38	12-Mar-2024 15:55	12-Mar-2024 15:57	12-Mar-2024 15:58	12-Mar-2024 15:59
Compound	CAS Number	LOR	Unit		ES2408294-035	ES2408294-036	ES2408294-037	ES2408294-039	ES2408294-040
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	<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		**0.25**	<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		**0.51**	<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		**0.06**	<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**	<0.01	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	0990_SW188_240312	0990_SW350_240312	0990_QC103_240312	0990_QC301_240312	0990_QC401_240312
			Sampling date / time	12-Mar-2024 15:38	12-Mar-2024 15:55	12-Mar-2024 15:57	12-Mar-2024 15:58	12-Mar-2024 15:59
Compound	CAS Number	LOR	Unit	ES2408294-035	ES2408294-036	ES2408294-037	ES2408294-039	ES2408294-040
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<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	<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	**0.94**	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.76**	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.90**	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**104**	**101**	**104**	**101**	**100**
13C8-PFOA	----	0.02	%	**103**	**100**	**101**	**102**	**104**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW021_240312	0990_POT236_240313	0990_QC302_240313	0990_QC402_240313	----
				Sampling date / time	12-Mar-2024 16:25	13-Mar-2024 09:06	13-Mar-2024 09:16	13-Mar-2024 09:16	----
Compound	CAS Number	LOR	Unit		ES2408294-041	ES2408294-042	ES2408294-043	ES2408294-044	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.05**	<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	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.08**	<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	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW021_240312	0990_POT236_240313	0990_QC302_240313	0990_QC402_240313	----
				Sampling date / time	12-Mar-2024 16:25	13-Mar-2024 09:06	13-Mar-2024 09:16	13-Mar-2024 09:16	----
Compound	CAS Number	LOR	Unit		ES2408294-041	ES2408294-042	ES2408294-043	ES2408294-044	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	<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		**0.13**	<0.01	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.13**	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.13**	<0.01	<0.01	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**104**	**103**	**96.1**	----
13C8-PFOA	----	0.02	%		**99.8**	**101**	**102**	**105**	----

Surrogate Control Limits

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2408294-AA**	Page	: 1 of 21
Client	: **AECOM AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: POPPY HARDING	Contact	: Loren Schiavon
Address	: GPO BOX 3175 DARWIN NT, AUSTRALIA 0801	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Mar-2024 16:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 19-Mar-2024
C-O-C number	: 64829	Issue Date	: 22-Mar-2024 16:09
Sampler	: Jordan Brookes, Tiane Mcquire		
Site	: PP, twice wet SW, biannual SW and GW		
Quote number	: SY/139/19 V3		
No. of samples received	: 39		
No. of samples analysed	: 39		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Results for samples #3 and 18 confirmed by re-analysis.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231X-INJ: The direct injection LCMSMS method may be used where the sample matrix is not suitable for Solid Phase Extraction (e.g. significant particulate load) or where only a single sample container is received.

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_OTH117_240312	0990_OTH118_240313	0990_POT112_240312	0990_POT113_240312	0990_POT114_240313
				Sampling date / time	12-Mar-2024 07:19	13-Mar-2024 08:25	12-Mar-2024 07:51	12-Mar-2024 08:02	13-Mar-2024 07:52
					ES2408294-001	ES2408294-002	ES2408294-004	ES2408294-005	ES2408294-006
					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	**0.03**	**0.09**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.01**	<0.01	**0.02**	**0.14**	**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		<0.01	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH117_240312	0990_OTH118_240313	0990_POT112_240312	0990_POT113_240312	0990_POT114_240313
				Sampling date / time	12-Mar-2024 07:19	13-Mar-2024 08:25	12-Mar-2024 07:51	12-Mar-2024 08:02	13-Mar-2024 07:52
Compound	CAS Number	LOR	Unit		ES2408294-001	ES2408294-002	ES2408294-004	ES2408294-005	ES2408294-006
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.05**	**0.25**	**0.02**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	<0.01	**0.05**	**0.23**	**0.02**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	<0.01	**0.05**	**0.25**	**0.02**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**94.8**	**97.6**	**109**	**93.5**
13C8-PFOA	----	0.02	%		**96.7**	**106**	**103**	**103**	**106**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT120_240313	0990_POT121_240312	0990_POT124_240313	0990_POT125_240312	0990_POT127_240313
				Sampling date / time	13-Mar-2024 08:45	12-Mar-2024 07:42	13-Mar-2024 07:30	12-Mar-2024 08:54	13-Mar-2024 08:31
					ES2408294-007	ES2408294-008	ES2408294-009	ES2408294-010	ES2408294-011
					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		**0.02**	**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**	**0.02**	<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		<0.02	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT120_240313	0990_POT121_240312	0990_POT124_240313	0990_POT125_240312	0990_POT127_240313
				Sampling date / time	13-Mar-2024 08:45	12-Mar-2024 07:42	13-Mar-2024 07:30	12-Mar-2024 08:54	13-Mar-2024 08:31
Compound	CAS Number	LOR	Unit		ES2408294-007	ES2408294-008	ES2408294-009	ES2408294-010	ES2408294-011
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	**0.03**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	**0.03**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	**0.03**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.2**	**88.7**	**100**	**102**	**93.5**
13C8-PFOA	----	0.02	%		**109**	**104**	**103**	**108**	**103**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT128_240312	0990_POT129_240312	0990_POT130_240313	0990_POT131_240312	0990_POT198_240313
				Sampling date / time	12-Mar-2024 08:15	12-Mar-2024 08:24	13-Mar-2024 08:16	12-Mar-2024 08:40	13-Mar-2024 07:39
Compound	CAS Number	LOR	Unit		ES2408294-012	ES2408294-013	ES2408294-014	ES2408294-015	ES2408294-016
					Result	Result	Result	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		----	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	**0.02**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		----	<0.02	----	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	<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
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<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
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	----	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT128_240312	0990_POT129_240312	0990_POT130_240313	0990_POT131_240312	0990_POT198_240313
				Sampling date / time	12-Mar-2024 08:15	12-Mar-2024 08:24	13-Mar-2024 08:16	12-Mar-2024 08:40	13-Mar-2024 07:39
					ES2408294-012	ES2408294-013	ES2408294-014	ES2408294-015	ES2408294-016
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
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	----	----	----
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		----	<0.02	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT128_240312	0990_POT129_240312	0990_POT130_240313	0990_POT131_240312	0990_POT198_240313
				Sampling date / time	12-Mar-2024 08:15	12-Mar-2024 08:24	13-Mar-2024 08:16	12-Mar-2024 08:40	13-Mar-2024 07:39
					ES2408294-012	ES2408294-013	ES2408294-014	ES2408294-015	ES2408294-016
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	----	----	----
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT128_240312	0990_POT129_240312	0990_POT130_240313	0990_POT131_240312	0990_POT198_240313
				Sampling date / time	12-Mar-2024 08:15	12-Mar-2024 08:24	13-Mar-2024 08:16	12-Mar-2024 08:40	13-Mar-2024 07:39
Compound	CAS Number	LOR	Unit		ES2408294-012	ES2408294-013	ES2408294-014	ES2408294-015	ES2408294-016
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
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		----	**0.02**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	**0.02**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	**0.02**	----	----	----
Sum of PFAS	----	0.01	µg/L		<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
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	----	**97.7**	**106**	**97.2**
13C4-PFOS	----	0.02	%		----	**92.8**	----	----	----
13C8-PFOA	----	0.02	%		**101**	----	**105**	**104**	**96.4**
13C8-PFOA	----	0.02	%		----	**98.6**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT201_240312	0990_QC100_240312	0990_QC101_240312	0990_QC300_240311	0990_QC400_240311
				Sampling date / time	12-Mar-2024 07:32	12-Mar-2024 08:06	12-Mar-2024 11:39	11-Mar-2024 16:06	11-Mar-2024 16:07
Compound	CAS Number	LOR	Unit		ES2408294-017	ES2408294-018	ES2408294-019	ES2408294-022	ES2408294-023
					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	**0.04**	<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	**0.05**	**0.02**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT201_240312	0990_QC100_240312	0990_QC101_240312	0990_QC300_240311	0990_QC400_240311
				Sampling date / time	12-Mar-2024 07:32	12-Mar-2024 08:06	12-Mar-2024 11:39	11-Mar-2024 16:06	11-Mar-2024 16:07
Compound	CAS Number	LOR	Unit		ES2408294-017	ES2408294-018	ES2408294-019	ES2408294-022	ES2408294-023
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.09**	**0.03**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.09**	**0.02**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.09**	**0.03**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**100**	**94.0**	**96.8**	**102**	**102**
13C8-PFOA	----	0.02	%		**104**	**103**	**99.6**	**104**	**100**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC500_240311	0990_POT237_240311	0990_SW140_240311	0990_SW161_240311	0990_SW110_240311
				Sampling date / time	11-Mar-2024 16:07	11-Mar-2024 10:48	11-Mar-2024 14:27	11-Mar-2024 16:03	11-Mar-2024 16:29
Compound	CAS Number	LOR	Unit		ES2408294-024	ES2408294-025	ES2408294-026	ES2408294-027	ES2408294-028
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.88**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**3.07**	<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	**0.2**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	**0.11**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	**0.47**	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.10**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**0.16**	<0.01	<0.01
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	**0.04**	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	**0.06**	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	**0.07**	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_QC500_240311	0990_POT237_240311	0990_SW140_240311	0990_SW161_240311	0990_SW110_240311
				Sampling date / time	11-Mar-2024 16:07	11-Mar-2024 10:48	11-Mar-2024 14:27	11-Mar-2024 16:03	11-Mar-2024 16:29
Compound	CAS Number	LOR	Unit		ES2408294-024	ES2408294-025	ES2408294-026	ES2408294-027	ES2408294-028
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.29**	<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	**5.81**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**3.95**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**5.39**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.6**	**104**	**99.9**	**103**	**102**
13C8-PFOA	----	0.02	%		**102**	**102**	**103**	**98.9**	**101**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW100_240312	0990_SW016_240312	0990_OTH114_240312	0990_QC102_240312	0990_SW049_240312
				Sampling date / time	12-Mar-2024 09:10	12-Mar-2024 10:47	12-Mar-2024 11:24	12-Mar-2024 13:04	12-Mar-2024 14:46
Compound	CAS Number	LOR	Unit		ES2408294-029	ES2408294-030	ES2408294-031	ES2408294-032	ES2408294-034
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	**66.4**	**0.10**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	**70.2**	**0.08**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**0.07**	**0.09**	**495**	**0.48**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	**55.4**	**0.03**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**0.12**	**0.14**	**939**	**1.35**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	**11.6**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	**28.2**	**0.06**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	**110**	**0.19**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	**15.0**	**0.03**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	**32.7**	**0.05**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	**0.51**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW100_240312	0990_SW016_240312	0990_OTH114_240312	0990_QC102_240312	0990_SW049_240312
				Sampling date / time	12-Mar-2024 09:10	12-Mar-2024 10:47	12-Mar-2024 11:24	12-Mar-2024 13:04	12-Mar-2024 14:46
Compound	CAS Number	LOR	Unit		ES2408294-029	ES2408294-030	ES2408294-031	ES2408294-032	ES2408294-034
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<1.25	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.50	<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	<0.50	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.50	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.50	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.50	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	**0.19**	**0.23**	**1820**	**2.37**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.19**	**0.23**	**1430**	**1.83**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.19**	**0.23**	**1700**	**2.26**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**105**	**103**	**101**	**108**	**96.6**
13C8-PFOA	----	0.02	%		**102**	**99.8**	**100**	**105**	**100**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW188_240312	0990_SW350_240312	0990_QC103_240312	0990_QC301_240312	0990_QC401_240312
				Sampling date / time	12-Mar-2024 15:38	12-Mar-2024 15:55	12-Mar-2024 15:57	12-Mar-2024 15:58	12-Mar-2024 15:59
Compound	CAS Number	LOR	Unit		ES2408294-035	ES2408294-036	ES2408294-037	ES2408294-039	ES2408294-040
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	<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		**0.25**	<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		**0.51**	<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		**0.06**	<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**	<0.01	<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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	0990_SW188_240312	0990_SW350_240312	0990_QC103_240312	0990_QC301_240312	0990_QC401_240312
			Sampling date / time	12-Mar-2024 15:38	12-Mar-2024 15:55	12-Mar-2024 15:57	12-Mar-2024 15:58	12-Mar-2024 15:59
Compound	CAS Number	LOR	Unit	ES2408294-035	ES2408294-036	ES2408294-037	ES2408294-039	ES2408294-040
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<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	<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	**0.94**	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.76**	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.90**	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**104**	**101**	**104**	**101**	**100**
13C8-PFOA	----	0.02	%	**103**	**100**	**101**	**102**	**104**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW021_240312	0990_POT236_240313	0990_QC302_240313	0990_QC402_240313	----
				Sampling date / time	12-Mar-2024 16:25	13-Mar-2024 09:06	13-Mar-2024 09:16	13-Mar-2024 09:16	----
Compound	CAS Number	LOR	Unit		ES2408294-041	ES2408294-042	ES2408294-043	ES2408294-044	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.05**	<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	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.08**	<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	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW021_240312	0990_POT236_240313	0990_QC302_240313	0990_QC402_240313	----
				Sampling date / time	12-Mar-2024 16:25	13-Mar-2024 09:06	13-Mar-2024 09:16	13-Mar-2024 09:16	----
Compound	CAS Number	LOR	Unit		ES2408294-041	ES2408294-042	ES2408294-043	ES2408294-044	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	<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		**0.13**	<0.01	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.13**	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.13**	<0.01	<0.01	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**104**	**103**	**96.1**	----
13C8-PFOA	----	0.02	%		**99.8**	**101**	**102**	**105**	----

Surrogate Control Limits

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2408294-AB**	Page	: 1 of 5
Client	: [redacted]	Laboratory	: Environmental Division Sydney
Contact	:	Contact	
Address	: [redacted]	Address	[redacted]
Telephone	: ----	Telephone	
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Mar-2024 16:30
Order number	: 60612561/3.1	Date Analysis Commenced	: 19-Mar-2024
C-O-C number	: 64829	Issue Date	: 22-Mar-2024 16:10
Sampler	: [redacted]		
Site	: PP, twice wet SW, biannual SW and GW		
Quote number	: SY/139/19 V3		
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]		

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 QSM5.4 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Results for samples #3 and 18 confirmed by re-analysis.
- EP231X: Particular samples required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH119_240312	----	----	----	----
				Sampling date / time	12-Mar-2024 11:39	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2408294-003	--------	--------	--------	--------	
				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	----	----	----	----	

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH119_240312	----	----	----	----
				Sampling date / time	12-Mar-2024 11:39	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2408294-003	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.02**	----	----	----	----
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		**0.02**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.3**	----	----	----	----
13C8-PFOA	----	0.02	%		**102**	----	----	----	----

Surrogate Control Limits

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

QUALITY CONTROL REPORT

Work Order	: **ES2408294-AB**	Page	: 1 of 4
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	: [redacted]
Address		Address	:
Telephone	: ----	Telephone	:
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Mar-2024
Order number	: 60612561/3.1	Date Analysis Commenced	: 19-Mar-2024
C-O-C number	: 64829	Issue Date	: 22-Mar-2024
Sampler	: [redacted]		
Site	: PP, twice wet SW, biannual SW and GW		
Quote number	: SY/139/19 V3		
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]		

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: 5674712)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	83.4	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	87.9	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	82.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	85.6	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	86.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	80.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5674712)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	90.7	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	85.8	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	91.3	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	92.4	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	86.9	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	87.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	83.3	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	89.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5674712)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	95.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	90.7	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	102	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	89.7	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	91.0	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	117	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5674712)								

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: 5674712) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	84.8	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	94.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	100	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	89.2	71.4	144

Matrix Spike (MS) Report

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

- **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	: **ES2408294**	Page	: 1 of 8
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Telephone	: [redacted]
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 15-Mar-2024
Site	: PP, twice wet SW, biannual SW and GW	Issue Date	: 22-Mar-2024
Sampler	: [redacted]	No. of samples received	: 40
Order number	: 60612561/3.1	No. of samples analysed	: 40

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
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	56	3.57	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	56	1.79	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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)								
0990_QC300_240311		**11-Mar-2024**	**20-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
HDPE (no PTFE) (EP231X)								
0990_QC400_240311,	0990_QC500_240311,	**11-Mar-2024**	**21-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
0990_POT237_240311,	0990_SW140_240311,							
0990_SW161_240311,	0990_SW110_240311							
HDPE (no PTFE) (EP231X)								
0990_OTH119_240312		**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**21-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X)								
0990_OTH117_240312,	0990_POT112_240312,	**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
0990_POT113_240312,	0990_POT121_240312,							
0990_POT125_240312,	0990_POT128_240312,							
0990_POT131_240312,	0990_POT201_240312,							
0990_QC100_240312								
HDPE (no PTFE) (EP231X)								
0990_POT129_240312,	0990_QC101_240312,	**12-Mar-2024**	**21-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
0990_SW100_240312,	0990_SW016_240312,							
0990_OTH114_240312,	0990_QC102_240312,							
0990_SW049_240312,	0990_SW188_240312,							
0990_SW350_240312,	0990_QC103_240312,							
0990_QC301_240312,	0990_QC401_240312,							
0990_SW021_240312								

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								
HDPE (no PTFE) (EP231X)								
0990_OTH118_240313,	0990_POT114_240313,	**13-Mar-2024**	**20-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓
0990_POT120_240313,	0990_POT124_240313,							
0990_POT127_240313,	0990_POT130_240313,							
0990_POT198_240313								
HDPE (no PTFE) (EP231X)								
0990_POT236_240313,	0990_QC302_240313,	**13-Mar-2024**	**21-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓
0990_QC402_240313								
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0990_QC300_240311		**11-Mar-2024**	**20-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
HDPE (no PTFE) (EP231X)								
0990_QC400_240311,	0990_QC500_240311,	**11-Mar-2024**	**21-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
0990_POT237_240311,	0990_SW140_240311,							
0990_SW161_240311,	0990_SW110_240311							
HDPE (no PTFE) (EP231X)								
0990_OTH119_240312		**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**21-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X)								
0990_OTH117_240312,	0990_POT112_240312,	**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
0990_POT113_240312,	0990_POT121_240312,							
0990_POT125_240312,	0990_POT128_240312,							
0990_POT131_240312,	0990_POT201_240312,							
0990_QC100_240312								
HDPE (no PTFE) (EP231X)								
0990_POT129_240312,	0990_QC101_240312,	**12-Mar-2024**	**21-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
0990_SW100_240312,	0990_SW016_240312,							
0990_OTH114_240312,	0990_QC102_240312,							
0990_SW049_240312,	0990_SW188_240312,							
0990_SW350_240312,	0990_QC103_240312,							
0990_QC301_240312,	0990_QC401_240312,							
0990_SW021_240312								
HDPE (no PTFE) (EP231X)								
0990_OTH118_240313,	0990_POT114_240313,	**13-Mar-2024**	**20-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓
0990_POT120_240313,	0990_POT124_240313,							
0990_POT127_240313,	0990_POT130_240313,							
0990_POT198_240313								
HDPE (no PTFE) (EP231X)								
0990_POT236_240313,	0990_QC302_240313,	**13-Mar-2024**	**21-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓
0990_QC402_240313								

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) 0990_QC300_240311	**11-Mar-2024**	**20-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC400_240311, 0990_QC500_240311, 0990_POT237_240311, 0990_SW140_240311, 0990_SW161_240311, 0990_SW110_240311	**11-Mar-2024**	**21-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH119_240312	**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**21-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_240312, 0990_POT112_240312, 0990_POT113_240312, 0990_POT121_240312, 0990_POT125_240312, 0990_POT128_240312, 0990_POT131_240312, 0990_POT201_240312, 0990_QC100_240312	**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT129_240312, 0990_QC101_240312, 0990_SW100_240312, 0990_SW016_240312, 0990_OTH114_240312, 0990_QC102_240312, 0990_SW049_240312, 0990_SW188_240312, 0990_SW350_240312, 0990_QC103_240312, 0990_QC301_240312, 0990_QC401_240312, 0990_SW021_240312	**12-Mar-2024**	**21-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH118_240313, 0990_POT114_240313, 0990_POT120_240313, 0990_POT124_240313, 0990_POT127_240313, 0990_POT130_240313, 0990_POT198_240313	**13-Mar-2024**	**20-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT236_240313, 0990_QC302_240313, 0990_QC402_240313	**13-Mar-2024**	**21-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0990_QC300_240311	**11-Mar-2024**	**20-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC400_240311, 0990_QC500_240311, 0990_POT237_240311, 0990_SW140_240311, 0990_SW161_240311, 0990_SW110_240311	**11-Mar-2024**	**21-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH119_240312	**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**21-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_240312, 0990_POT112_240312, 0990_POT113_240312, 0990_POT121_240312, 0990_POT125_240312, 0990_POT128_240312, 0990_POT131_240312, 0990_POT201_240312, 0990_QC100_240312	**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT129_240312, 0990_QC101_240312, 0990_SW100_240312, 0990_SW016_240312, 0990_OTH114_240312, 0990_QC102_240312, 0990_SW049_240312, 0990_SW188_240312, 0990_SW350_240312, 0990_QC103_240312, 0990_QC301_240312, 0990_QC401_240312, 0990_SW021_240312	**12-Mar-2024**	**21-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH118_240313, 0990_POT114_240313, 0990_POT120_240313, 0990_POT124_240313, 0990_POT127_240313, 0990_POT130_240313, 0990_POT198_240313	**13-Mar-2024**	**20-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT236_240313, 0990_QC302_240313, 0990_QC402_240313	**13-Mar-2024**	**21-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0990_QC300_240311	**11-Mar-2024**	**20-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_QC400_240311, 0990_QC500_240311, 0990_POT237_240311, 0990_SW140_240311, 0990_SW161_240311, 0990_SW110_240311	**11-Mar-2024**	**21-Mar-2024**	07-Sep-2024	✓	**22-Mar-2024**	07-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH119_240312	**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**21-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_240312, 0990_POT112_240312, 0990_POT113_240312, 0990_POT121_240312, 0990_POT125_240312, 0990_POT128_240312, 0990_POT131_240312, 0990_POT201_240312, 0990_QC100_240312	**12-Mar-2024**	**20-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT129_240312, 0990_QC101_240312, 0990_SW100_240312, 0990_SW016_240312, 0990_OTH114_240312, 0990_QC102_240312, 0990_SW049_240312, 0990_SW188_240312, 0990_SW350_240312, 0990_QC103_240312, 0990_QC301_240312, 0990_QC401_240312, 0990_SW021_240312	**12-Mar-2024**	**21-Mar-2024**	08-Sep-2024	✓	**22-Mar-2024**	08-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH118_240313, 0990_POT114_240313, 0990_POT120_240313, 0990_POT124_240313, 0990_POT127_240313, 0990_POT130_240313, 0990_POT198_240313	**13-Mar-2024**	**20-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT236_240313, 0990_QC302_240313, 0990_QC402_240313	**13-Mar-2024**	**21-Mar-2024**	09-Sep-2024	✓	**22-Mar-2024**	09-Sep-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	56	**3.57**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	56	**5.36**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	56	**5.36**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	56	**1.79**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X-INJ	0	1	**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 5.4, 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
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 : **ES2412006**

Client	: [redacted]	Laboratory	[redacted]
Contact	:	Contact	
Address	:	Address	
E-mail	:	E-mail	
Telephone	:	Telephone	
Facsimile	: ----	Facsimile	
Project	: NT_0990_PFASOMP_24	Page	: 1 of 3
Order number	: 60612561/3.1	Quote number	: ES2019AECOMAU0030 (SY/139/19 V3)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: [redacted]		

Dates

Date Samples Received	: 16-Apr-2024 15:45	Issue Date	: 16-Apr-2024
Client Requested Due Date	: 24-Apr-2024	Scheduled Reporting Date	: **24-Apr-2024**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 12.4'C
Receipt Detail	:	No. of samples received / analysed	: 34 / 29

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.**
- **Samples QC200, QC201 and QC202 have been forwarded to NMI.**
- 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: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (30 analytes)
ES2412006-020	10-Apr-2024 00:00	0990_SS779_240410		✓	✓
ES2412006-021	10-Apr-2024 00:00	0990_SS780_240410	✓		
ES2412006-022	10-Apr-2024 00:00	0990_SS781_240410	✓		
ES2412006-030	10-Apr-2024 00:00	0990_QC102_240410		✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (30 analytes)
ES2412006-001	10-Apr-2024 00:00	0990_OTH117_240410		✓
ES2412006-002	10-Apr-2024 00:00	0990_POT201_240410		✓
ES2412006-003	10-Apr-2024 00:00	0990_POT121_240410		✓
ES2412006-004	10-Apr-2024 00:00	0990_POT112_240410		✓
ES2412006-005	10-Apr-2024 00:00	0990_POT113_240410		✓
ES2412006-006	10-Apr-2024 00:00	0990_POT128_240410		✓
ES2412006-007	10-Apr-2024 00:00	0990_POT129_240410		✓
ES2412006-008	10-Apr-2024 00:00	0990_OTH119_240410		✓
ES2412006-009	10-Apr-2024 00:00	0990_POT131_240410		✓
ES2412006-010	10-Apr-2024 00:00	0990_POT125_240410		✓
ES2412006-011	10-Apr-2024 00:00	0990_POT126_240410		✓
ES2412006-012	10-Apr-2024 00:00	0990_OTH130_240410		✓
ES2412006-013	10-Apr-2024 00:00	0990_OTH118_240410		✓
ES2412006-014	10-Apr-2024 00:00	0990_POT127_240410		✓
ES2412006-015	10-Apr-2024 00:00	0990_POT120_240410		✓
ES2412006-016	11-Apr-2024 00:00	0990_POT124_240411		✓
ES2412006-017	11-Apr-2024 00:00	0990_POT198_240411		✓
ES2412006-018	11-Apr-2024 00:00	0990_POT114_240411		✓
ES2412006-019	11-Apr-2024 00:00	0990_POT130_240411		✓

			(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (30 analytes)
ES2412006-023	10-Apr-2024 00:00	0990_POT238_240410		✓
ES2412006-024	10-Apr-2024 00:00	0990_OTH131_240410		✓
ES2412006-025	10-Apr-2024 00:00	0990_QC100_240410		✓
ES2412006-026	10-Apr-2024 00:00	0990_QC300_240410		✓
ES2412006-027	10-Apr-2024 00:00	0990_QC400_240410	✓	
ES2412006-028	10-Apr-2024 00:00	0990_QC500_240410	✓	
ES2412006-029	10-Apr-2024 00:00	0990_QC101_240410		✓
ES2412006-031	10-Apr-2024 00:00	0990_QC302_240410		✓
ES2412006-032	10-Apr-2024 00:00	0990_QC402_240410	✓	
ES2412006-033	10-Apr-2024 00:00	0990_SW153_240410		✓
ES2412006-034	10-Apr-2024 00:00	0990_SW108_240410		✓

Proactive Holding Time Report

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

Re..uested Deliverables

[redacted]

CERTIFICATE OF ANALYSIS

Work Order	: **ES2412006**	Page	: 1 of 17
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	[redacted]
Address		Address	
Telephone	: ----	Telephone	
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 16-Apr-2024 15:45
Order number	: 60612561/3.1	Date Analysis Commenced	: 17-Apr-2024
C-O-C number	: ----	Issue Date	: 26-Apr-2024 11:07
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 34		
No. of samples analysed	: 29		

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]		

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 QSM5.4 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 or as per tables in USEPA 1633 where listed. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration or as per USEPA 1633 limits where LISTED. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS and also conform to QSM 5.4 (US DoD) requirements.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	0990_SS779_240410	0990_QC102_240410	----	----	----
			Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2412006-020	ES2412006-030	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**10.8**	**10.5**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
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	<0.0002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0990_SS779_240410	0990_QC102_240410	----	----	----
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2412006-020	ES2412006-030	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**81.4**	**89.8**	----	----	----
13C8-PFOA	----	0.0002	%		**110**	**105**	----	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_OTH117_240410	0990_POT201_240410	0990_POT121_240410	0990_POT112_240410	0990_POT113_240410
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00
					ES2412006-001	ES2412006-002	ES2412006-003	ES2412006-004	ES2412006-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<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	**0.03**	<0.01	**0.04**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.05**	**0.02**	**0.07**
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH117_240410	0990_POT201_240410	0990_POT121_240410	0990_POT112_240410	0990_POT113_240410
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412006-001	ES2412006-002	ES2412006-003	ES2412006-004	ES2412006-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.08**	**0.02**	**0.11**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.08**	**0.02**	**0.11**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.08**	**0.02**	**0.11**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.8**	**81.8**	**95.2**	**86.6**	**89.5**
13C8-PFOA	----	0.02	%		**95.3**	**95.5**	**92.1**	**92.6**	**97.4**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT128_240410	0990_POT129_240410	0990_OTH119_240410	0990_POT131_240410	0990_POT125_240410
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412006-006	ES2412006-007	ES2412006-008	ES2412006-009	ES2412006-010
					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**	**0.03**	<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	**0.02**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT128_240410	0990_POT129_240410	0990_OTH119_240410	0990_POT131_240410	0990_POT125_240410
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412006-006	ES2412006-007	ES2412006-008	ES2412006-009	ES2412006-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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**	**0.05**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.01**	**0.03**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.01**	**0.05**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.5**	**96.2**	**98.8**	**94.8**	**94.3**
13C8-PFOA	----	0.02	%		**93.7**	**94.3**	**98.2**	**94.1**	**95.8**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT126_240410	0990_OTH130_240410	0990_OTH118_240410	0990_POT127_240410	0990_POT120_240410
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412006-011	ES2412006-012	ES2412006-013	ES2412006-014	ES2412006-015
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**0.10**	<0.01	<0.01	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**0.15**	<0.01	<0.01	**0.03**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT126_240410	0990_OTH130_240410	0990_OTH118_240410	0990_POT127_240410	0990_POT120_240410
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412006-011	ES2412006-012	ES2412006-013	ES2412006-014	ES2412006-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	**0.25**	<0.01	<0.01	**0.05**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.25**	<0.01	<0.01	**0.05**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.25**	<0.01	<0.01	**0.05**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.5**	**92.9**	**91.4**	**91.7**	**92.5**
13C8-PFOA	----	0.02	%		**100.0**	**86.6**	**94.8**	**97.4**	**91.9**

Analytical Results

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

Compound	CAS Number	LOR	Unit	Sample ID	0990_POT124_240411	0990_POT198_240411	0990_POT114_240411	0990_POT130_240411	0990_POT238_240410
				Sampling date / time	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	10-Apr-2024 00:00
					ES2412006-016	ES2412006-017	ES2412006-018	ES2412006-019	ES2412006-023
					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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_POT124_240411	0990_POT198_240411	0990_POT114_240411	0990_POT130_240411	0990_POT238_240410
				Sampling date / time	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	11-Apr-2024 00:00	10-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412006-016	ES2412006-017	ES2412006-018	ES2412006-019	ES2412006-023
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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	%		**91.5**	**101**	**95.1**	**89.6**	**104**
13C8-PFOA	----	0.02	%		**94.7**	**97.8**	**88.7**	**91.2**	**112**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH131_240410	0990_QC100_240410	0990_QC300_240410	0990_QC101_240410	0990_QC302_240410
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412006-024	ES2412006-025	ES2412006-026	ES2412006-029	ES2412006-031
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.07**	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.06**	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.34**	<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		**0.64**	**0.02**	<0.01	**0.02**	<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		**0.02**	**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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_OTH131_240410	0990_QC100_240410	0990_QC300_240410	0990_QC101_240410	0990_QC302_240410
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00	10-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		ES2412006-024	ES2412006-025	ES2412006-026	ES2412006-029	ES2412006-031
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<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	<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		**1.21**	**0.05**	<0.01	**0.03**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.98**	**0.02**	<0.01	**0.03**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.12**	**0.05**	<0.01	**0.03**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.3**	**102**	**99.3**	**101**	**95.6**
13C8-PFOA	----	0.02	%		**109**	**116**	**114**	**114**	**112**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW153_240410	0990_SW108_240410	----	----	----
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2412006-033	ES2412006-034	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	<0.01	----	----	----
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		**0.02**	<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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	0990_SW153_240410	0990_SW108_240410	----	----	----
				Sampling date / time	10-Apr-2024 00:00	10-Apr-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2412006-033	ES2412006-034	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
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	----	----	----
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		**0.04**	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**103**	----	----	----
13C8-PFOA	----	0.02	%		**112**	**113**	----	----	----

Surrogate Control Limits

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

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

QUALITY CONTROL REPORT

Work Order	: **ES2412006**	Page	: 1 of 9
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Contact	[redacted]
Address		Address	
Telephone	: ----	Telephone	
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 16-Apr-2024
Order number	: 60612561/3.1	Date Analysis Commenced	: 17-Apr-2024
C-O-C number	: ----	Issue Date	: 26-Apr-2024
Sampler	: [redacted]		
Site	: ----		
Quote number	: SY/139/19 V3		
No. of samples received	: 34		
No. of samples analysed	: 29		

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]		

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: 5741730)									
ES2411951-057	Anonymous	EA055: Moisture Content	----	0.1	%	0.2	0.3	0.0	No Limit
ES2412314-001	Anonymous	EA055: Moisture Content	----	0.1	%	54.0	53.5	0.9	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5738062)									
ES2412005-001	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
ES2412005-008	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5738062)									
ES2412005-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5738062) - continued									
ES2412005-001	Anonymous	EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2412005-008	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: 5738062)									
ES2412005-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2412005-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory 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: 5738062) - continued									
ES2412005-008	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5738062)									
ES2412005-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2412005-008	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: 5738062)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	82.1	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	75.7	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.5	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.7	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5738062)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	91.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.3	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.9	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	111	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5738062)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.5	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	111	71.6	129
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	110	69.8	131
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	101	68.7	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.5	65.1	134
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	131	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.7	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5738062)								

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: 5738062) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	106	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	70.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	83.2	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	111	69.2	143

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: 5736489)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	92.5	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	91.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	89.1	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	102	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	113	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5736492)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	75.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	83.7	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	69.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	89.7	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	84.7	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	76.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5736489)								
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	126	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.1	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	76.1	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.9	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	88.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	107	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	102	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5736492)								

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: 5736492) - continued								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	82.7	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	95.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	78.5	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	89.7	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	97.3	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	86.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	92.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.5	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	83.5	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5736489)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	121	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	84.6	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	97.9	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	109	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	98.7	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5736492)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	96.9	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	79.0	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	81.4	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	106	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	85.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	90.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5736489)								

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: 5736489) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	91.5	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	84.4	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	94.7	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	80.4	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5736492)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	107	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	95.0	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	98.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	91.6	71.4	144

Matrix Spike (MS) Report

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

Sub-Matrix: **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: 5738062)							
ES2412005-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	84.7	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	84.5	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	82.6	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	96.7	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	97.6	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	116	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5738062)							
ES2412005-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	99.2	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	90.6	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	112	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	103	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	108	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	113	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	91.4	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	120	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	111	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	109	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5738062)							

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: 5738062) - continued							
ES2412005-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	100	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	90.2	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	87.7	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	130	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	114	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	140	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	90.6	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5738062)							
ES2412005-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	110	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	99.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	106	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	88.4	69.2	143

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2412006**	Page	: 1 of 7
Client	[redacted]	Laboratory	: Environmental Division Sydney
Contact		Telephone	: [redacted]
Project	: NT_0990_PFASOMP_24	Date Samples Received	: 16-Apr-2024
Site	: ----	Issue Date	: 26-Apr-2024
Sampler	[redacted]	No. of samples received	: 34
Order number	: 60612561/3.1	No. of samples analysed	: 29

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
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	27	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	27	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)								
0990_SS779_240410,	0990_QC102_240410	**10-Apr-2024**	**----**	----	----	**22-Apr-2024**	24-Apr-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0990_SS779_240410,	0990_QC102_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	01-Jun-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
0990_SS779_240410,	0990_QC102_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	01-Jun-2024	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
0990_SS779_240410,	0990_QC102_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	01-Jun-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0990_SS779_240410,	0990_QC102_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	01-Jun-2024	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
0990_SS779_240410,	0990_QC102_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	01-Jun-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

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) 0990_POT238_240410, 0990_OTH131_240410, 0990_QC100_240410, 0990_QC300_240410, 0990_QC101_240410, 0990_QC302_240410, 0990_SW153_240410, 0990_SW108_240410	**10-Apr-2024**	**19-Apr-2024**	07-Oct-2024	✓	**25-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_240410, 0990_POT201_240410, 0990_POT121_240410, 0990_POT112_240410, 0990_POT113_240410, 0990_POT128_240410, 0990_POT129_240410, 0990_OTH119_240410, 0990_POT131_240410, 0990_POT125_240410, 0990_POT126_240410, 0990_OTH130_240410, 0990_OTH118_240410, 0990_POT127_240410, 0990_POT120_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT124_240411, 0990_POT198_240411, 0990_POT114_240411, 0990_POT130_240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**24-Apr-2024**	08-Oct-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0990_POT238_240410, 0990_OTH131_240410, 0990_QC100_240410, 0990_QC300_240410, 0990_QC101_240410, 0990_QC302_240410, 0990_SW153_240410, 0990_SW108_240410	**10-Apr-2024**	**19-Apr-2024**	07-Oct-2024	✓	**25-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_240410, 0990_POT201_240410, 0990_POT121_240410, 0990_POT112_240410, 0990_POT113_240410, 0990_POT128_240410, 0990_POT129_240410, 0990_OTH119_240410, 0990_POT131_240410, 0990_POT125_240410, 0990_POT126_240410, 0990_OTH130_240410, 0990_OTH118_240410, 0990_POT127_240410, 0990_POT120_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT124_240411, 0990_POT198_240411, 0990_POT114_240411, 0990_POT130_240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**24-Apr-2024**	08-Oct-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0990_POT238_240410, 0990_OTH131_240410, 0990_QC100_240410, 0990_QC300_240410, 0990_QC101_240410, 0990_QC302_240410, 0990_SW153_240410, 0990_SW108_240410	**10-Apr-2024**	**19-Apr-2024**	07-Oct-2024	✓	**25-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_240410, 0990_POT201_240410, 0990_POT121_240410, 0990_POT112_240410, 0990_POT113_240410, 0990_POT128_240410, 0990_POT129_240410, 0990_OTH119_240410, 0990_POT131_240410, 0990_POT125_240410, 0990_POT126_240410, 0990_OTH130_240410, 0990_OTH118_240410, 0990_POT127_240410, 0990_POT120_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT124_240411, 0990_POT198_240411, 0990_POT114_240411, 0990_POT130_240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**24-Apr-2024**	08-Oct-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0990_POT238_240410, 0990_OTH131_240410, 0990_QC100_240410, 0990_QC300_240410, 0990_QC101_240410, 0990_QC302_240410, 0990_SW153_240410, 0990_SW108_240410	**10-Apr-2024**	**19-Apr-2024**	07-Oct-2024	✓	**25-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_240410, 0990_POT201_240410, 0990_POT121_240410, 0990_POT112_240410, 0990_POT113_240410, 0990_POT128_240410, 0990_POT129_240410, 0990_OTH119_240410, 0990_POT131_240410, 0990_POT125_240410, 0990_POT126_240410, 0990_OTH130_240410, 0990_OTH118_240410, 0990_POT127_240410, 0990_POT120_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT124_240411, 0990_POT198_240411, 0990_POT114_240411, 0990_POT130_240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**24-Apr-2024**	08-Oct-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0990_POT238_240410, 0990_OTH131_240410, 0990_QC100_240410, 0990_QC300_240410, 0990_QC101_240410, 0990_QC302_240410, 0990_SW153_240410, 0990_SW108_240410	**10-Apr-2024**	**19-Apr-2024**	07-Oct-2024	✓	**25-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_OTH117_240410, 0990_POT201_240410, 0990_POT121_240410, 0990_POT112_240410, 0990_POT113_240410, 0990_POT128_240410, 0990_POT129_240410, 0990_OTH119_240410, 0990_POT131_240410, 0990_POT125_240410, 0990_POT126_240410, 0990_OTH130_240410, 0990_OTH118_240410, 0990_POT127_240410, 0990_POT120_240410	**10-Apr-2024**	**22-Apr-2024**	07-Oct-2024	✓	**24-Apr-2024**	07-Oct-2024	✓
HDPE (no PTFE) (EP231X) 0990_POT124_240411, 0990_POT198_240411, 0990_POT114_240411, 0990_POT130_240411	**11-Apr-2024**	**22-Apr-2024**	08-Oct-2024	✓	**24-Apr-2024**	08-Oct-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	27	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	27	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 5.4, 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 5.4, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer:

Address:

Email:

Telephone:

LABORATORY DETAILS

SAMPLE DETAILS

NMI Job Name: AECO06/240222

Total No. of Samples: 2

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N24/003761	29-FEB-2024	0990_QC230_240213	WATER 13/02/2024 10:52 AM
N24/003762	29-FEB-2024	0990_QC231_240213	WATER 13/02/2024 01:11 PM

SAMPLE RECEIVED CONDITION

Date samples received:	22-FEB-2024
Sample received in good order:	Yes
NMI Quotation no. provided:	
Client purchase order number:	60612561/3_1
Temperature of samples:	Chilled
Comments:	ALL OK
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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. RN1420358

Client	[redacted]	**Job No.**	: AECO06/240222
		Quote No.	: QT-02257
		Order No.	: 60612561/3_1
		Date Received	: 22-FEB-2024
Attention	[redacted]	**Sampled By**	: CLIENT
Project Name	: NT_0990_PFASOMP_24		
Your Client Services Manager	[redacted]	**Phone**	[redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/003761	0990_QC230_240213	WATER 13/02/2024 10:52 AM
N24/003762	0990_QC231_240213	WATER 13/02/2024 01:11 PM

Lab Reg No.		N24/003761	N24/003762			
Date Sampled		13-FEB-2024	13-FEB-2024			
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	<0.05			NR70
PFPeA (2706-90-3)	ug/L	<0.02	<0.02			NR70
PFHxA (307-24-4)	ug/L	<0.01	0.023			NR70
PFHpA (375-85-9)	ug/L	<0.01	<0.01			NR70
PFOA (335-67-1)	ug/L	<0.01	<0.01			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	0.012			NR70
PFHxS (355-46-4)	ug/L	0.027	0.090			NR70
PFHpS (375-92-8)	ug/L	<0.01	<0.01			NR70
PFOS (1763-23-1)	ug/L	<0.02	0.13			NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01			NR70
PFBS (375-73-5)	ug/L	<0.01	0.013			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.		N24/003761	N24/003762			
Date Sampled		13-FEB-2024	13-FEB-2024			
	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)	%	124	118			NR70
PFPeA (Surrogate Recovery)	%	118	110			NR70
PFHxA (Surrogate Recovery)	%	127	126			NR70
PFHpA (Surrogate Recovery)	%	123	132			NR70
PFOA (Surrogate Recovery)	%	117	118			NR70
PFNA (Surrogate Recovery)	%	114	91			NR70
PFDA (Surrogate Recovery)	%	103	70			NR70
PFUdA (Surrogate Recovery)	%	96	51			NR70
PFDoA (Surrogate Recovery)	%	89	44			NR70
PFTeDA (Surrogate Recovery)	%	85	49			NR70
PFHxDA (Surrogate Recovery)	%	97	88			NR70
FOUEA (Surrogate Recovery)	%	67	53			NR70
PFBS (Surrogate Recovery)	%	126	125			NR70
PFHxS (Surrogate Recovery)	%	125	129			NR70
PFOS (Surrogate Recovery)	%	112	94			NR70
PFOSA (Surrogate Recovery)	%	87	55			NR70
N-MeFOSA (Surrogate Recovery)	%	67	42			NR70
N-EtFOSA (Surrogate Recovery)	%	55	33			NR70
N-MeFOSAA (Surrogate Recovery)	%	67	41			NR70
N-EtFOSAA (Surrogate Recovery)	%	80	41			NR70
N-MeFOSE (Surrogate Recovery)	%	57	35			NR70
N-EtFOSE (Surrogate Recovery)	%	70	39			NR70
4:2 FTS (Surrogate Recovery)	%	104	98			NR70
6:2 FTS (Surrogate Recovery)	%	86	91			NR70
8:2 FTS (Surrogate Recovery)	%	88	67			NR70
8:2 diPAP (Surrogate Recovery)	%	91	117			NR70
Dates						
Date extracted		27-FEB-2024	27-FEB-2024			
Date analysed		27-FEB-2024	27-FEB-2024			

N24/003761
to
N24/003762

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]

NATA
WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.

Results relate only to the sample(s) as received and tested.

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: 105 Delhi Road, North Ryde, NSW, 2113

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: [redacted]

NMI QA Report No: AECO06/240222 **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	98	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	91	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	89	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	94	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	103	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	85	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	94	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	99	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	92	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	107	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	103	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	93	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	100	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	93	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	93	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	91	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	88	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	88	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	61	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	96	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	73	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	83	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	99	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	95	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	91	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	94	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	91	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	98	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	104	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	66	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	107	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:

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

Attention: [redacted]

Customer

Address:

Email:

Telephone

LABORATORY DETAILS

[redacted]

SAMPLE DETAILS

NMI Job Name: AECO06/240320/2

Total No. of Samples: 3

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N24/006131	27-MAR-2024	0990_QC201_240312	WATER 12/03/2024 01:09PM
N24/006132	27-MAR-2024	0990_QC202_240312	WATER 12/03/2024 02:34PM

SAMPLE RECEIVED CONDITION

Date samples received:	20-MAR-2024
Sample received in good order:	Yes
NMI Quotation no. provided:	NT_0990_PFASOMP_24
Client purchase order number:	60612561/3_1
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: [redacted]

NMI QA Report No: AECO06/240320 **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	84	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	67	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	79	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	78	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	81	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	74	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	74	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	79	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	74	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	73	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	83	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	81	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	91	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	90	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	77	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	77	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	79	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	76	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	80	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	72	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	54	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	79	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	75	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	80	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	69	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	76	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	133	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	79	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	75	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	75	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	53	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	107	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:

REPORT OF ANALYSIS

Report No. RN1426300

Client	[redacted]	**Job No.**	: AECO06/240417/1
		Quote No.	: QT-02257
		Order No.	: 60612561/3_1
		Date Received	: 17-APR-2024
Attention		**Sampled By**	: CLIENT
Project Name : NT_0990_PFASOMP_24			
Your Client Services Manager : [redacted]		**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/008366	0990_QC202_240410	SOIL 10/04/2024

Lab Reg No.		N24/008366				
Date Sampled		10-APR-2024				
	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	<0.001				NR70
PFHpS (375-92-8)	mg/kg	<0.001				NR70
PFOS (1763-23-1)	mg/kg	<0.002				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.		N24/008366				
Date Sampled		10-APR-2024				
	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)	%	120				NR70
PFPeA (Surrogate Recovery)	%	113				NR70
PFHxA (Surrogate Recovery)	%	115				NR70
PFHpA (Surrogate Recovery)	%	119				NR70
PFOA (Surrogate Recovery)	%	124				NR70
PFNA (Surrogate Recovery)	%	124				NR70
PFDA (Surrogate Recovery)	%	130				NR70
PFUdA (Surrogate Recovery)	%	127				NR70
PFDoA (Surrogate Recovery)	%	117				NR70
PFTeDA (Surrogate Recovery)	%	126				NR70
PFHxDA (Surrogate Recovery)	%	110				NR70
FOUEA (Surrogate Recovery)	%	88				NR70
PFBS (Surrogate Recovery)	%	120				NR70
PFHxS (Surrogate Recovery)	%	122				NR70
PFOS (Surrogate Recovery)	%	124				NR70
PFOSA (Surrogate Recovery)	%	114				NR70
N-MeFOSA (Surrogate Recovery)	%	83				NR70
N-EtFOSA (Surrogate Recovery)	%	87				NR70
N-MeFOSAA (Surrogate Recovery)	%	139				NR70
N-EtFOSAA (Surrogate Recovery)	%	166				NR70
N-MeFOSE (Surrogate Recovery)	%	93				NR70
N-EtFOSE (Surrogate Recovery)	%	97				NR70
4:2 FTS (Surrogate Recovery)	%	138				NR70
6:2 FTS (Surrogate Recovery)	%	148				NR70
8:2 FTS (Surrogate Recovery)	%	237				NR70
8:2 diPAP (Surrogate Recovery)	%	177				NR70
Dates						
Date extracted		23-APR-2024				
Date analysed		24-APR-2024				

N24/008366
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.

[redacted]

26-APR-2024

Lab Reg No.		N24/008366				
Date Sampled		10-APR-2024				
	Units					Method
Trace Elements						
Total Solids	%	88.3				NT2_49
Dates						
Date extracted		23-APR-2024				
Date analysed		24-APR-2024				

[redacted]

All results are expressed on a dry weight basis.

REPORT OF ANALYSIS

Report No. RN1426300

Client	[redacted]	**Job No.**	: AECO06/240417/1
		Quote No.	: QT-02257
		Order No.	: 60612561/3_1
		Date Received	: 17-APR-2024
Attention		**Sampled By**	: CLIENT
Project Name : NT_0990_PFASOMP_24			
Your Client Services Manager : [redacted]		**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/008364	0990_QC200_240410	WATER 10/04/2024
N24/008365	0990_QC201_240410	WATER 10/04/2024

Lab Reg No.			N24/008364	N24/008365			
Date Sampled			10-APR-2024	10-APR-2024			
		Units					Method
PFAS (per-and poly-fluoroalkyl substances)							
PFBA (375-22-4)		ug/L	<0.05	<0.05			NR70
PFPeA (2706-90-3)		ug/L	<0.02	<0.02			NR70
PFHxA (307-24-4)		ug/L	<0.01	<0.01			NR70
PFHpA (375-85-9)		ug/L	<0.01	<0.01			NR70
PFOA (335-67-1)		ug/L	0.022	<0.01			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	<0.01			NR70
PFHxS (355-46-4)		ug/L	<0.01	<0.01			NR70
PFHpS (375-92-8)		ug/L	<0.01	<0.01			NR70
PFOS (1763-23-1)		ug/L	<0.02	<0.02			NR70
PFNS (68259-12-1)		ug/L	<0.01	<0.01			NR70
PFBS (375-73-5)		ug/L	<0.01	<0.01			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.			N24/008364	N24/008365			
Date Sampled			10-APR-2024	10-APR-2024			
		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)		%	84	87			NR70
PFPeA (Surrogate Recovery)		%	81	86			NR70
PFHxA (Surrogate Recovery)		%	86	88			NR70
PFHpA (Surrogate Recovery)		%	85	89			NR70
PFOA (Surrogate Recovery)		%	84	92			NR70
PFNA (Surrogate Recovery)		%	78	71			NR70
PFDA (Surrogate Recovery)		%	75	69			NR70
PFUdA (Surrogate Recovery)		%	70	62			NR70
PFDoA (Surrogate Recovery)		%	63	54			NR70
PFTeDA (Surrogate Recovery)		%	64	47			NR70
PFHxDA (Surrogate Recovery)		%	80	75			NR70
FOUEA (Surrogate Recovery)		%	65	61			NR70
PFBS (Surrogate Recovery)		%	79	86			NR70
PFHxS (Surrogate Recovery)		%	85	88			NR70
PFOS (Surrogate Recovery)		%	84	79			NR70
PFOSA (Surrogate Recovery)		%	53	54			NR70
N-MeFOSA (Surrogate Recovery)		%	37	34			NR70
N-EtFOSA (Surrogate Recovery)		%	37	37			NR70
N-MeFOSAA (Surrogate Recovery)		%	55	49			NR70
N-EtFOSAA (Surrogate Recovery)		%	60	63			NR70
N-MeFOSE (Surrogate Recovery)		%	57	50			NR70
N-EtFOSE (Surrogate Recovery)		%	54	48			NR70
4:2 FTS (Surrogate Recovery)		%	81	77			NR70
6:2 FTS (Surrogate Recovery)		%	68	75			NR70
8:2 FTS (Surrogate Recovery)		%	60	60			NR70
8:2 diPAP (Surrogate Recovery)		%	68	66			NR70
Dates							
Date extracted			23-APR-2024	23-APR-2024			
Date analysed			24-APR-2024	24-APR-2024			

N24/008364
to
N24/008365

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]

NATA
WORLD RECOGNISED ACCREDITATION

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.

* Denotes the analyte or test method is not within our ISO/IEC 17025 scope of accreditation.

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: 105 Delhi Road, North Ryde, NSW, 2113

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: [redacted]

NMI QA Report No: AECO06/240417/1 **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	124	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	96	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	102	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	98	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	112	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	107	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	85	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	76	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	85	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	104	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	88	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	84	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	94	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	76	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	88	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	91	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	98	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	99	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	85	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	74	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	107	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	116	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	114	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	74	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	76	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	97	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	91	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	111	NA
6:2 FTS (27619-97-2)	NR70	0.01	<0.01	NA	NA	NA	113	NA
8:2 FTS (39108-34-4)	NR70	0.01	<0.01	NA	NA	NA	105	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	60	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	89	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:

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: [redacted]

NMI QA Report No: AECO06/240417/1 **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	110	NA
PFPeA (2706-90-3)	NR70	0.002	<0.002	NA	NA	NA	104	NA
PFHxA (307-24-4)	NR70	0.001	<0.001	NA	NA	NA	103	NA
PFHpA (375-85-9)	NR70	0.001	<0.001	NA	NA	NA	103	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	108	NA
PFDA (335-76-2)	NR70	0.001	<0.001	NA	NA	NA	101	NA
PFUdA (2058-94-8)	NR70	0.002	<0.002	NA	NA	NA	107	NA
PFDoA (307-55-1)	NR70	0.002	<0.002	NA	NA	NA	99	NA
PFTrDA (72629-94-8)	NR70	0.002	<0.002	NA	NA	NA	102	NA
PFTeDA (376-06-7)	NR70	0.002	<0.002	NA	NA	NA	109	NA
PFHxDA (67905-19-5)	NR70	0.002	<0.002	NA	NA	NA	88	NA
PFODA (16517-11-6)	NR70	0.005	<0.005	NA	NA	NA	90	NA
FOUEA (70887-84-2)	NR70	0.001	<0.001	NA	NA	NA	93	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	99	NA
PFHxS (355-46-4)	NR70	0.001	<0.001	NA	NA	NA	98	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	110	NA
PFNS (68259-12-1)	NR70	0.001	<0.001	NA	NA	NA	118	NA
PFDS (335-77-3)	NR70	0.001	<0.001	NA	NA	NA	112	NA
PFOSA (754-91-6)	NR70	0.001	<0.001	NA	NA	NA	97	NA
N-MeFOSA (31506-32-8)	NR70	0.002	<0.002	NA	NA	NA	122	NA
N-EtFOSA (4151-50-2)	NR70	0.002	<0.002	NA	NA	NA	113	NA
N-MeFOSAA (2355-31-9)	NR70	0.002	<0.002	NA	NA	NA	89	NA
N-EtFOSAA(2991-50-6)	NR70	0.002	<0.002	NA	NA	NA	97	NA
N-MeFOSE (24448-09-7)	NR70	0.005	<0.005	NA	NA	NA	102	NA
N-EtFOSE (1691-99-2)	NR70	0.005	<0.005	NA	NA	NA	96	NA
4:2 FTS (757124-72-4)	NR70	0.001	<0.001	NA	NA	NA	117	NA
6:2 FTS (27619-97-2)	NR70	0.001	<0.001	NA	NA	NA	97	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	88	NA
8:2 diPAP (678-41-1)	NR70	0.002	<0.002	NA	NA	NA	91	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:

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

CUSTOMER DETAILS

[redacted]

LABORATORY DETAILS

SAMPLE DETAILS

NMI Job Name: AECO06/240320/1

Total No. of Samples: 3

LRNs	Estimated Report Date	Customer Sample ID	Lab Sample Description
N24/006134	27-MAR-2024	0990_QC200_240313	WATER 13/03/2024 02:17PM
N24/006135	27-MAR-2024	0990_QC201_240313	WATER 13/03/2024 02:35PM

SAMPLE RECEIVED CONDITION

Date samples received:	20-MAR-2024
Sample received in good order:	Yes
NMI Quotation no. provided:	NT_0990_PFASMGMT_24
Client purchase order number:	60676801
Temperature of samples:	Chilled
Comments:	
Mode of Delivery:	

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.

Alterations to Client requirements requested after commencement of testing may incur charges.

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

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: [redacted]

NMI QA Report No: AECO06/240320/2 **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	84	NA
PFPeA (2706-90-3)	NR70	0.02	<0.02	NA	NA	NA	67	NA
PFHxA (307-24-4)	NR70	0.01	<0.01	NA	NA	NA	79	NA
PFHpA (375-85-9)	NR70	0.01	<0.01	NA	NA	NA	78	NA
PFOA (335-67-1)	NR70	0.01	<0.01	NA	NA	NA	81	NA
PFNA (375-95-1)	NR70	0.01	<0.01	NA	NA	NA	74	NA
PFDA (335-76-2)	NR70	0.01	<0.01	NA	NA	NA	74	NA
PFUdA (2058-94-8)	NR70	0.01	<0.01	NA	NA	NA	79	NA
PFDoA (307-55-1)	NR70	0.01	<0.01	NA	NA	NA	74	NA
PFTrDA (72629-94-8)	NR70	0.02	<0.02	NA	NA	NA	73	NA
PFTeDA (376-06-7)	NR70	0.02	<0.02	NA	NA	NA	83	NA
PFHxDA (67905-19-5)	NR70	0.02	<0.02	NA	NA	NA	81	NA
PFODA (16517-11-6)	NR70	0.05	<0.05	NA	NA	NA	91	NA
FOUEA (70887-84-2)	NR70	0.01	<0.01	NA	NA	NA	90	NA
PFBS (375-73-5)	NR70	0.01	<0.01	NA	NA	NA	77	NA
PFPeS (2706-91-4)	NR70	0.01	<0.01	NA	NA	NA	77	NA
PFHxS (355-46-4)	NR70	0.01	<0.01	NA	NA	NA	79	NA
PFHpS (375-92-8)	NR70	0.01	<0.01	NA	NA	NA	76	NA
PFOS (1763-23-1)	NR70	0.02	<0.02	NA	NA	NA	80	NA
PFNS (68259-12-1)	NR70	0.01	<0.01	NA	NA	NA	72	NA
PFDS (335-77-3)	NR70	0.01	<0.01	NA	NA	NA	54	NA
PFOSA (754-91-6)	NR70	0.01	<0.01	NA	NA	NA	79	NA
N-MeFOSA (31506-32-8)	NR70	0.02	<0.02	NA	NA	NA	75	NA
N-EtFOSA (4151-50-2)	NR70	0.02	<0.02	NA	NA	NA	80	NA
N-MeFOSAA (2355-31-9)	NR70	0.01	<0.01	NA	NA	NA	69	NA
N-EtFOSAA(2991-50-6)	NR70	0.01	<0.01	NA	NA	NA	76	NA
N-MeFOSE (24448-09-7)	NR70	0.05	<0.05	NA	NA	NA	133	NA
N-EtFOSE (1691-99-2)	NR70	0.05	<0.05	NA	NA	NA	79	NA
4:2 FTS (757124-72-4)	NR70	0.01	<0.01	NA	NA	NA	75	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	75	NA
10:2 FTS (120226-60-0)	NR70	0.01	<0.01	NA	NA	NA	53	NA
8:2 diPAP (678-41-1)	NR70	0.02	<0.02	NA	NA	NA	107	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:

REPORT OF ANALYSIS

Report No. RN1423430

Client	[redacted]	**Job No.**	: AECO06/240320/2
		Quote No.	: QT-02257
		Order No.	: 60612561/3_1
		Date Received	: 20-MAR-2024
Attention		**Sampled By**	: CLIENT
Project Nan			
Your Client		**Phone**	: 02 9449 0169

Lab Reg No.	Sample Ref	Sample Description
N24/006131	0990_QC201_240312	WATER 12/03/2024 01:09PM
N24/006132	0990_QC202_240312	WATER 12/03/2024 02:34PM
N24/006133	0990_QC203_240312	WATER 12/03/2024 05:27PM

Lab Reg No.		N24/006131	N24/006132	N24/006133		
Date Sampled		12-MAR-2024	12-MAR-2024	12-MAR-2024		
	Units					**Method**
PFAS (per-and poly-fluoroalkyl substances)						
PFBA (375-22-4)	ug/L	<0.05	14	<0.05		NR70
PFPeA (2706-90-3)	ug/L	<0.02	17	<0.02		NR70
PFHxA (307-24-4)	ug/L	<0.01	77	<0.01		NR70
PFHpA (375-85-9)	ug/L	<0.01	8.4	<0.01		NR70
PFOA (335-67-1)	ug/L	<0.01	19	<0.01		NR70
PFNA (375-95-1)	ug/L	<0.01	0.42	<0.01		NR70
PFDA (335-76-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFUdA (2058-94-8)	ug/L	<0.01	<0.01	<0.01		NR70
PFDoA (307-55-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFTrDA (72629-94-8)	ug/L	<0.02	<0.02	<0.02		NR70
PFTeDA (376-06-7)	ug/L	<0.02	<0.02	<0.02		NR70
PFHxDA (67905-19-5)	ug/L	<0.02	<0.02	<0.02		NR70
PFODA (16517-11-6)	ug/L	<0.05	<0.05	<0.05		NR70
FOUEA (70887-84-2)	ug/L	<0.01	<0.01	<0.01		NR70
PFDS (335-77-3)	ug/L	<0.01	<0.01	<0.01		NR70
PFPeS (2706-91-4)	ug/L	<0.01	36	<0.01		NR70
PFHxS (355-46-4)	ug/L	<0.01	310	<0.01		NR70
PFHpS (375-92-8)	ug/L	<0.01	37	<0.01		NR70
PFOS (1763-23-1)	ug/L	<0.02	540	<0.02		NR70
PFNS (68259-12-1)	ug/L	<0.01	<0.01	<0.01		NR70
PFBS (375-73-5)	ug/L	<0.01	60	<0.01		NR70
PFOSA (754-91-6)	ug/L	<0.01	0.058	<0.01		NR70
N-MeFOSA (31506-32-8)	ug/L	<0.02	<0.02	<0.02		NR70
N-EtFOSA (4151-50-2)	ug/L	<0.02	<0.02	<0.02		NR70
N-MeFOSAA (2355-31-9)	ug/L	<0.01	<0.01	<0.01		NR70
N-EtFOSAA(2991-50-6)	ug/L	<0.01	<0.01	<0.01		NR70
N-MeFOSE (24448-09-7)	ug/L	<0.05	<0.05	<0.05		NR70
N-EtFOSE (1691-99-2)	ug/L	<0.05	<0.05	<0.05		NR70

REPORT OF ANALYSIS

Report No. RN1423430

Lab Reg No.		N24/006131	N24/006132	N24/006133		
Date Sampled		12-MAR-2024	12-MAR-2024	12-MAR-2024		
	Units					Method
PFAS (per-and poly-fluoroalkyl substances)						
4:2 FTS (757124-72-4)	ug/L	<0.01	<0.01	<0.01		NR70
6:2 FTS (27619-97-2)	ug/L	<0.01	0.051	<0.01		NR70
8:2 FTS (39108-34-4)	ug/L	<0.01	0.011	<0.01		NR70
10:2 FTS (120226-60-0)	ug/L	<0.01	<0.01	<0.01		NR70
8:2 diPAP (678-41-1)	ug/L	<0.02	<0.02	<0.02		NR70
PFBA (Surrogate Recovery)	%	143	136	145		NR70
PFPeA (Surrogate Recovery)	%	154	128	144		NR70
PFHxA (Surrogate Recovery)	%	137	70	134		NR70
PFHpA (Surrogate Recovery)	%	148	128	149		NR70
PFOA (Surrogate Recovery)	%	145	122	140		NR70
PFNA (Surrogate Recovery)	%	134	18	131		NR70
PFDA (Surrogate Recovery)	%	119	127	122		NR70
PFUdA (Surrogate Recovery)	%	90	111	96		NR70
PFDoA (Surrogate Recovery)	%	78	105	80		NR70
PFTeDA (Surrogate Recovery)	%	91	129	78		NR70
PFHxDA (Surrogate Recovery)	%	117	328	97		NR70
FOUEA (Surrogate Recovery)	%	80	162	95		NR70
PFBS (Surrogate Recovery)	%	143	79	135		NR70
PFHxS (Surrogate Recovery)	%	139	43	140		NR70
PFOS (Surrogate Recovery)	%	125	123	119		NR70
PFOSA (Surrogate Recovery)	%	93	106	76		NR70
N-MeFOSA (Surrogate Recovery)	%	82	224	61		NR70
N-EtFOSA (Surrogate Recovery)	%	66	213	52		NR70
N-MeFOSAA (Surrogate Recovery)	%	75	98	68		NR70
N-EtFOSAA (Surrogate Recovery)	%	69	113	64		NR70
N-MeFOSE (Surrogate Recovery)	%	56	167	41		NR70
N-EtFOSE (Surrogate Recovery)	%	74	230	53		NR70
4:2 FTS (Surrogate Recovery)	%	160	227	184		NR70
6:2 FTS (Surrogate Recovery)	%	118	210	119		NR70
8:2 FTS (Surrogate Recovery)	%	99	112	96		NR70
8:2 diPAP (Surrogate Recovery)	%	102	127	93		NR70
Dates						
Date extracted		25-MAR-2024	25-MAR-2024	25-MAR-2024		
Date analysed		26-MAR-2024	26-MAR-2024	26-MAR-2024		

N24/006132
to
N24/006133

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.

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]

28-MAR-2024

NATA
WORLD RECOGNISED ACCREDITATION

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.

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: 105 Delhi Road, North Ryde, NSW, 2113

Appendix C

Tables

Table T1
Current and Historical Groundwater Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T1 - Historical Groundwater Gauging and Water Quality Parameters

AECOM

Site	Location	Date	Depth to Water	Well Depth	TOC	Water Elevation	DO	Temperature	Redox Potential	Redox Potential Corrected	Electrical Conductivity	pH
			mbTOC	mbTOC	mAHD	mAHD	mg/L	°C	mV	mV	µS/cm	pH Units
990	MW104	25/09/2017	5.323	20.2	132.988	127.665	0.58	30.2	0.2	200.2	1215	6.9
990	MW104	27/11/2017	5.739	20.2	132.988	127.249	0.68	29.7	-30.9	169.1	993	6.84
990	MW104	16/03/2018	2.94	20.2	132.988	130.048	2.27	32.3	131.9	331.9	1353	7.34
990	MW104	10/04/2018	3.998	20.2	132.988	128.99	2.26	28.3	95.6	295.6	652	7.28
990	MW104	18/12/2018	6.15	20.2	132.988	126.838	5.88	29.6	95	295	208	6.7
990	MW104	23/04/2020	7.818	21	132.988	125.17	-	31.7	156.8	356.8	862	6.89
990	MW104	21/04/2021	4.123	20.63	132.988	128.865	0.7	28.1	1.7	201.7	1017	7.29
990	MW104	8/10/2021	6.775	20.9	132.988	126.213	1.58	29.8	83	283	822	7.74
990	MW104	18/10/2022	7.898	20.65	132.988	125.09	1.01	31.6	58.5	258.5	855	6.75
990	MW104	19/09/2023	7.062	20.62	132.99	125.928	1.89	30.4	29.4	229.4	457	6.67
990	MW105	25/09/2017	-	-	-	-	1.58	30.4	108.6	308.6	871	6.86
990	MW105	27/11/2017	-	-	-	-	0.63	29.9	119.2	319.2	842	6.05
990	MW105	16/03/2018	-	-	-	-	4.49	31.4	192.5	392.5	1067	7.57
990	MW106	24/09/2017	-	-	-	-	2.12	31	125	325	942	7.21
990	MW106	26/11/2017	-	-	-	-	0.53	28.4	215.6	415.6	824	6.93
990	MW106	19/03/2018	-	-	-	-	1.32	30.7	110.2	310.2	1052	6.73
990	MW106	18/09/2023	6.975	10.2	130.16	123.185	-	-	-	-	-	-
990	MW107	24/09/2017	6.273	22.5	130.71	124.437	1.32	31.9	113	313	919	7.23
990	MW107	26/11/2017	6.648	22.5	130.71	124.062	0.35	29.3	244.2	444.2	826	6.91
990	MW107	19/03/2018	5.591	22.5	130.71	125.119	1.51	30.8	103.6	303.6	1000	6.82
990	MW107	18/12/2018	7.063	22.5	130.71	123.647	3.51	29.1	9.3	209.3	759	6.94
990	MW107	23/04/2020	8.602	14.15	130.71	122.108	0.97	30.2	164.6	364.6	806	7.01
990	MW107	20/04/2021	4.964	13.693	130.71	125.746	1.99	32.7	19.1	219.1	594	7.22
990	MW107	9/10/2021	7.593	13.82	130.71	123.117	1.3	31.3	-1.9	198.1	838	7.45
990	MW107	17/10/2022	8.606	13.5	130.71	122.104	0.91	30.6	-66.9	133.1	855	6.76
990	MW107	19/09/2023	7.955	13.551	130.71	122.755	1.74	27.7	-22.7	177.3	799	6.8
990	MW108	24/09/2017	-	-	-	-	1.92	32	130	330	964	7.32
990	MW108	26/11/2017	-	-	-	-	0.43	29.7	252.3	452.3	836	6.84
990	MW108	19/03/2018	-	-	-	-	3.47	30.5	103.7	303.7	1134	7.25
990	MW109	24/09/2017	-	-	-	-	1.47	32	120.7	320.7	932	7.1
990	MW109	26/11/2017	-	-	-	-	0.44	29.6	260.8	460.8	838	6.83
990	MW109	19/03/2018	-	-	-	-	3.34	29.7	115	315	991	7.42
990	MW109D	24/09/2017	-	-	-	-	2.78	32.4	133	333	983	7.07
990	MW109D	26/11/2017	-	-	-	-	0.45	29.4	269.4	469.4	809	7.09
990	MW109D	19/03/2018	-	-	-	-	3.32	30.2	108.6	308.6	999	7.14
990	MW109D	18/12/2018	-	-	-	-	2.21	29.8	48	248	461	7.04
990	MW110	24/09/2017	4.15	13.2	126.97	122.82	1.31	30.5	108	308	942	7.1
990	MW110	26/11/2017	4.463	13.2	126.97	122.507	0.4	30.2	257.4	457.4	854	6.86
990	MW110	19/03/2018	3.071	13.2	126.97	123.899	0.93	31.1	116.1	316.1	1228	6.73
990	MW110	10/04/2018	2.684	13.2	126.97	124.286	1.83	28.2	98.6	298.6	798	7.08
990	MW110	10/04/2018	2.684	13.2	126.97	124.286	2.57	28.6	85.9	285.9	729	7.16
990	MW110	10/04/2018	2.684	13.2	126.97	124.286	1.83	28.2	98.6	298.6	798	7.08
990	MW110	20/04/2021	2.701	5.8	126.97	124.269	0.81	31.3	-38.7	161.3	833	6.7
990	MW110	9/10/2021	5.419	10.4	126.97	121.551	0.8	31.6	28.9	228.9	853	7.55
990	MW110	17/10/2022	6.404	12.06	126.97	120.566	1.25	30.9	5	205	853	6.8
990	MW110	19/09/2023	5.798	12.05	126.97	121.172	3.28	24.2	34.3	234.3	746	6.73
990	MW111	23/09/2017	-	-	-	-	1.83	31	112	312	1046	7.01
990	MW111	26/11/2017	-	-	-	-	0.42	29.2	249.6	449.6	858	6.85
990	MW111	19/03/2018	-	-	-	-	0.66	30.8	111.9	311.9	1521	6.78
990	MW112	23/09/2017	-	-	-	-	1.96	29.5	98	298	802	7.38
990	MW112	26/11/2017	-	-	-	-	0.83	29.7	162.4	362.4	760	6.79
990	MW112	20/01/2018	-	-	-	-	0.48	30	-	-	368.5	7.16
990	MW112	19/03/2018	-	-	-	-	1.25	31.1	133.8	333.8	702	7.17
990	MW113	23/09/2017	-	-	-	-	1.96	31.5	119	319	699	7.43
990	MW113	26/11/2017	-	-	-	-	0.41	29.8	185	385	522	7.03
990	MW113	20/01/2018	-	-	-	-	0.55	31.5	-	-	514	7.2
990	MW113	19/03/2018	-	-	-	-	3.91	31.4	135.5	335.5	583	7.18
990	MW114	25/09/2017	-	-	-	-	1.77	32	132.6	332.6	907	6.89
990	MW114	27/11/2017	-	-	-	-	0.41	30.3	190.5	390.5	834	6.66
990	MW114	27/01/2018	-	-	-	-	0.61	30.7	44.6	244.6	848	7.5
990	MW114	27/03/2018	-	-	-	-	1.73	31.9	103.6	303.6	780	6.59
990	MW115	25/09/2017	-	-	-	-	1.88	32.3	125	325	230	6.59
990	MW115	27/11/2017	-	-	-	-	0.36	30.5	158.6	358.6	143.7	6.64
990	MW115	27/01/2018	-	-	-	-	0.57	30	82.9	282.9	128.2	7.46
990	MW115	27/03/2018	-	-	-	-	1.15	32.1	92.6	292.6	117	6.03
990	MW116	24/09/2017	-	-	-	-	2.1	31	146	346	985	6.88
990	MW116	27/11/2017	-	-	-	-	1.85	28.3	118	318	861	6.88
990	MW116	28/03/2018	-	-	-	-	1.47	29.9	69.1	269.1	701	7.17
990	MW117	23/09/2017	9.43	15.3	120.53	111.1	1.69	32.3	133	333	949	6.97
990	MW117	26/11/2017	10.536	15.3	120.53	109.994	0.25	29.8	218.3	418.3	830	6.9
990	MW117	20/04/2021	13.97	20.3	120.53	106.56	1.5	31.2	64.6	264.6	900	7.17
990	MW118	23/09/2017	14.27	20	126.18	111.91	1.58	31	124	324	989	6.86
990	MW118	26/11/2017	15.356	20.9	126.18	110.824	0.34	30.6	218.1	418.1	897	6.86
990	MW118	23/04/2020	17.765	17.9	126.18	108.415	2.11	28.4	168.4	368.4	931	6.77
990	MW118	9/10/2021	16.468	20.45	126.18	109.712	1.95	31.7	113.2	313.2	934	7.39
990	MW118	19/09/2023	17.54	20.495	126.18	108.64	1.09	29.8	-6.1	193.9	899	6.58
990	MW119	23/09/2017	-	-	-	-	1.71	30.9	121	321	962	7.01
990	MW119	26/11/2017	-	-	-	-	0.46	29.6	236.3	436.3	841	6.88
990	MW120	24/09/2017	-	-	-	-	3.21	30.8	153	353	477	6.51
990	MW120	27/11/2017	-	-	-	-	1.67	27.5	136.2	336.2	551	6.81
990	MW120	28/03/2018	-	-	-	-	2.17	30.3	128.6	328.6	119	5.95
990	MW121	24/09/2017	-	-	-	-	1.78	30.1	185	385	490	5.8
990	MW121	27/11/2017	-	-	-	-	1.33	28.5	173	373	58.5	6.39
990	MW121	28/03/2018	-	-	-	-	1.53	29.7	50.3	250.3	83	5.63
990	MW122	24/09/2017	-	-	-	-	1.14	30.8	125	325	878	6.8
990	MW122	27/11/2017	-	-	-	-	0.82	28.7	194.5	394.5	812	6.8
990	MW122	28/03/2018	-	-	-	-	1.22	31.2	30.3	230.3	867	6.58
990	MW123	24/09/2017	-	-	-	-	1.14	30.1	129.4	329.4	863	7.1
990	MW123	28/03/2018	-	-	-	-	1.43	30.8	34.3	234.3	794	6.75
990	MW124	26/09/2017	-	-	-	-	1.2	31.2	17	217	644	7.26
990	MW124	26/11/2017	-	-	-	-	1.16	30.9	108.9	308.9	484.4	7.11
990	MW124	27/01/2018	-	-	-	-	1.54	28.3	38.7	238.7	326.2	8.32
990	MW124	17/05/2018	-	-	-	-	1.62	28.4	166.6	366.6	668	7.67
990	MW125	26/09/2017	-	-	-	-	0.15	32.2	-47.2	152.8	922	6.8
990	MW125	26/11/2017	-	-	-	-	0.67	32.3	56.8	256.8	877	6.82
990	MW125	27/01/2018	-	-	-	-	0.84	27.6	37.2	237.2	318.2	8.1
990	MW125	17/05/2018	-	-	-	-	1.32	29.1	66.1	266.1	538.2	7.47
990	MW126	26/09/2017	-	-	-	-	0.13	31.2	-111	89	1003	6.87
990	MW126	26/11/2017	-	-	-	-	1.27	31	-50.4	149.6	678	6.8
990	MW126	27/01/2018	-	-	-	-	0.68	28.4	38	238	726	7.88
990	MW126	17/05/2018	-	-	-	-	2.04	29.2	8.4	208.4	840.4	7.38
990	MW126D	13/12/2023	5.091	-	131.68	126.589	1.59	33.1	75.5	275.5	792	7
990	MW126I	13/12/2023	4.872	36.4	131.66	126.788	1.53	33.1	-139	61	598	8.65
990	MW127	26/09/2017	2.422	20	130.701	128.279	0.87	31.1	64	264	919	6.79
990	MW127	26/11/2017	2.713	20	130.701	127.988	0.73	30.9	144.1	344.1	846	6.78
990	MW127	27/01/2018	0.566	20	130.701	130.135	1.05	28.3	44	244	857	7.85
990	MW127	17/05/2018	1.667	20	130.701	129.034	2.02	28	142	342	801	7.4
990	MW127	18/12/2018	3.109	20	130.701	127.592	4.5	30.9	88.4	288.4	543	6.98
990	MW127	23/04/2020	4.874	20.7	130.701	125.827	0.9	32.6	195.8	395.8	868	6.9
990	MW127	19/04/2021	1.232	20.71	130.701	129.469	0.68	30.5	77.4	277.4	625	7.09
990	MW127	9/10/2021	3.816	20.84	130.701	126.885	0.6	30.6	76	276	820	7.37
990	MW127	19/10/2022	4.934	26.72	130.701	125.767	0.91	32.2	79.6	279.6	878	6.82

Table T1
Current and Historical Groundwater Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T1 - Historical Groundwater Gauging and Water Quality Parameters

AECOM

			Depth to Water	Well Depth	TOC	Water Elevation	DO	Temperature	Redox Potential	Redox Potential Corrected	Electrical Conductivity	pH
990	MW127	20/09/2023	4.152	20.765	130.7	126.548	0.91	29.3	60.9	260.9	815	6.78
990	MW128	26/09/2017	-	-	-	-	1.82	30.2	52.5	252.5	947	6.74
990	MW128	26/11/2017	-	-	-	-	0.63	30.5	150.8	350.8	837	6.75
990	MW128	27/01/2018	-	-	-	-	0.64	30.4	7.12	207.12	924	7.1
990	MW128	16/03/2018	-	-	-	-	2.09	29.8	158.3	358.3	996	7.16
990	MW128	17/05/2018	-	-	-	-	1.37	28.4	148.1	348.1	805	7.24
990	MW129	26/09/2017	3.994	20.1	132.876	128.882	0.82	33.2	120.4	320.4	923	6.9
990	MW129	26/11/2017	4.278	20.1	132.876	128.598	0.52	32.1	13.5	213.5	800	6.86
990	MW129	26/01/2018	2.088	20.1	132.876	130.788	0.37	32.7	23.3	223.3	851	6.27
990	MW129	16/03/2018	2.223	20.1	132.876	130.653	1.98	31.3	144.7	344.7	991	7.15
990	MW129	18/12/2018	4.703	20.9	132.876	128.173	5.24	32.4	88.8	288.8	635	6.91
990	MW129	23/04/2020	6.544	19.831	132.876	126.332	0.87	32	78.8	278.8	829	7.05
990	MW129	19/04/2021	2.92	19.58	132.876	129.956	0.95	31.2	-81.3	118.7	781	7.08
990	MW129	9/10/2021	5.473	19.74	132.876	127.403	0.86	32.2	70.2	270.2	818	7.54
990	MW129	19/10/2022	6.604	19.6	132.876	126.272	1.01	32.9	76.2	276.2	856	6.86
990	**MW129**	**20/09/2023**	5.8	19.5	132.88	127.08	0.82	31.7	111.7	311.7	851	6.69
990	MW130	21/09/2017	-	-	-	-	3	31.7	131.4	331.4	864	6.71
990	MW130	26/11/2017	-	-	-	-	0.22	29.1	212.6	412.6	796	6.98
990	MW130	21/03/2018	-	-	-	-	3.62	29.9	148.7	348.7	933	7.67
990	MW131	23/09/2017	-	-	-	-	1.89	30.2	129	329	953	7.36
990	MW131	27/11/2017	-	-	-	-	0.47	28.4	97.1	297.1	818	6.82
990	MW131	20/01/2018	-	-	-	-	0.72	29.7	-	-	815	6.6
990	MW131	21/03/2018	-	-	-	-	0.66	29.7	-100.5	99.5	894	7.57
990	MW132	21/09/2017	-	-	-	-	1.57	29.8	129	329	863	6.8
990	MW132	27/11/2017	-	-	-	-	0.5	29.1	110.4	310.4	794	6.88
990	MW132	20/01/2018	-	-	-	-	0.59	30.8	-	-	789	6.62
990	MW132	21/03/2018	-	-	-	-	3.88	28.9	102.2	302.2	883	7.24
990	MW132	24/04/2020	-	-	-	-	0.81	28.6	84.9	284.9	789	6.99
990	MW132	9/10/2021	-	-	-	-	1.36	31	88.5	288.5	790	7.68
990	MW133	23/09/2017	-	-	-	-	2.18	30.5	117	317	864	7.23
990	MW133	27/11/2017	-	-	-	-	0.38	29.4	149.8	349.8	944	6.99
990	MW133	20/01/2018	-	-	-	-	0.62	29.9	-	-	731	6.66
990	MW133	21/03/2018	-	-	-	-	3.2	29.7	107.6	307.6	608	7.65
990	MW133	19/12/2018	-	-	-	-	1.02	30.9	-67.6	132.4	629	6.88
990	MW133	21/04/2021	-	-	-	-	0.32	33.8	54.3	254.3	445.9	7.89
990	MW134	20/09/2017	7.08	20.5	110.019	102.939	2.71	30.1	125	325	1022	7.18
990	MW134	24/11/2017	8.022	20.5	110.019	101.997	2.1	32.2	154.9	354.9	933	6.99
990	MW134	28/03/2018	3.674	21.5	110.019	106.345	3.65	32.7	111.7	311.7	918	6.91
990	MW134	10/04/2018	4.269	21.5	110.019	105.75	2.32	29.2	63.9	263.9	775	7.3
990	MW134	17/01/2019	9.075	21.5	110.019	100.944	3.45	30.6	71.1	271.1	797	6.82
990	MW134	22/04/2021	7.275	10	110.019	102.744	0.55	32.7	-59.9	140.1	1084	6.83
990	MW135	22/09/2017	16.05	19.1	117.3	101.25	1.3	31.2	112.6	312.6	1242	7.13
990	MW135	24/11/2017	16.858	19.1	117.3	100.442	2.24	31.2	165.5	365.5	1100	7.21
990	MW135	17/01/2019	18.805	19.1	117.3	98.495	5.5	31.2	50.7	250.7	894	7.11
990	MW135	22/04/2021	16.889	19.3	117.3	100.411	0.79	30.9	118.9	318.9	845	7.36
990	MW135	9/10/2021	17.92	19.2	117.3	99.38	0.99	31.8	129.2	329.2	927	7.31
990	**MW135**	**25/09/2023**	19.072	19.67	117.3	98.228	1.89	30.2	57.9	257.9	687	-
990	MW136	22/09/2017	10.77	24.4	107.52	96.75	2.64	28.3	162.1	362.1	829	7.18
990	MW136	21/11/2017	11.328	24.4	107.52	96.192	1.81	31	184.1	384.1	845	7.34
990	MW136	19/01/2018	10.121	24.4	107.52	97.399	0.49	30.4	-	-	802	7.88
990	MW137	22/09/2017	11.54	20	109.87	98.33	2.58	30.3	126.1	326.1	860	6.69
990	MW137	24/11/2017	12.216	20	109.87	97.654	1.85	31	199.5	399.5	855	6.98
990	MW137	16/01/2018	12.139	20	109.87	97.731	0.53	30.6	-	-	819	6.55
990	MW137	18/01/2019	12.961	-	109.87	96.909	1.54	31.3	77.2	277.2	758	6.86
990	MW137	20/04/2020	15.202	-	109.87	94.668	1.89	31.4	217	417	802	6.94
990	MW137	20/04/2021	11.12	20.102	109.87	98.75	1.77	29	47.4	247.4	740	6.77
990	MW137	10/10/2021	13.049	20.32	109.87	96.821	1.68	32.3	94.8	294.8	868	6.93
990	MW137	18/10/2022	14.697	20.07	109.87	95.173	1.84	30.5	75.3	275.3	781	6.75
990	**MW137**	**25/09/2023**	14.285	20.1	109.87	95.585	2.5	32.4	130.7	330.7	857	6.81
990	MW138	22/09/2017	9.54	19.5	106.74	97.2	3.76	29.5	125.9	325.9	974	6.82
990	MW138	24/11/2017	10.811	19.5	106.74	95.929	2.32	30.6	213.9	413.9	939	6.9
990	MW138	19/01/2018	9.4	19.5	106.74	97.34	1.1	29.4	-	-	899	6.52
990	MW138	18/01/2019	10.816	-	106.74	95.924	3.86	30	78.8	278.8	817	6.81
990	MW138	20/04/2021	8.068	11.102	106.74	98.672	0.79	27.7	-96.6	103.4	987	6.62
990	MW139	21/09/2017	7.18	13.5	104.089	96.909	3.18	32.1	102.5	302.5	897	7.06
990	MW139	24/11/2017	7.81	13.5	104.089	96.279	1.95	33.8	124.2	324.2	903	6.95
990	MW139	16/01/2018	6.841	13.4	104.089	97.248	0.87	30.9	-	-	832	6.73
990	MW139	21/03/2018	3.215	13.4	104.089	100.874	2.78	30.2	155.2	355.2	956	7.18
990	MW140	22/09/2017	6.2	18.7	102.845	96.645	3.92	29.9	192.4	392.4	632	7.25
990	MW140	24/11/2017	6.811	18.7	102.845	96.034	1.51	31.9	121.3	321.3	599	7.3
990	MW140	16/01/2018	5.806	18.7	102.845	97.039	0.56	32.2	-	-	653	6.77
990	MW140	18/12/2018	7.355	-	102.845	95.49	2.85	31.9	100	300	697	7.17
990	MW140	20/04/2020	9.176	-	102.845	93.669	1.52	32.2	217.1	417.1	803	6.97
990	MW140	20/04/2021	4.588	18.67	102.845	98.257	3.12	28.6	48.6	248.6	578	7.05
990	MW140	9/10/2021	7.628	18.7	102.845	95.217	3.78	31.7	52.3	252.3	590	7.16
990	MW140	18/10/2022	9.105	18.59	102.845	93.74	1.9	32.7	87	287	811	6.89
990	**MW140**	**25/09/2023**	8.518	18.99	102.845	94.327	2.79	32.7	104.2	304.2	655	6.83
990	MW141	22/09/2017	7.15	20	101.75	94.6	4.31	29.6	148.8	348.8	513	7.05
990	MW141	24/11/2017	7.753	20	101.75	93.997	4.11	30.9	107.9	307.9	510	7.34
990	MW141	16/01/2018	6.675	20	101.75	95.075	0.71	30.8	-	-	541	6.82
990	MW141	22/04/2020	9.704	20.1	101.75	92.046	3	31.9	131.8	331.8	637	7.17
990	MW142	21/09/2017	7.86	18.1	102.234	94.374	1.2	30.1	139	339	849	6.93
990	MW142	22/11/2017	8.414	18.1	102.234	93.82	0.76	30.1	223.2	423.2	803	7
990	MW142	16/01/2018	7.291	18.1	102.234	94.943	0.73	29.8	-	-	772	6.63
990	MW142	18/12/2018	8.905	-	102.234	93.329	4.69	29.6	93.6	293.6	827	6.68
990	MW142	20/04/2021	6.115	10.371	102.234	96.119	1.09	27.2	-92.6	107.4	787	6.85
990	MW142	9/10/2021	9.185	10.9	102.234	93.049	0.92	30	-100.2	99.8	-	6.86
990	MW142	18/10/2022	10.532	10.95	102.234	91.702	0.98	31.2	132.2	332.2	431	6.98
990	**MW142**	**25/09/2023**	9.886	18.935	102.234	92.348	2.28	30	91.2	291.2	828	6.76
990	MW143	21/09/2017	11.21	19.4	103.536	92.326	0.81	30.9	133.7	333.7	927	6.99
990	MW143	22/11/2017	11.866	19.4	103.536	91.67	0.54	29.2	240.4	440.4	872	6.99
990	MW143	16/01/2018	11.041	19.4	103.536	92.495	0.72	29.2	-	-	852	6.5
990	MW144	21/09/2017	7.81	20	101.234	93.424	1.57	32	166	366	988	6.83
990	MW144	24/11/2017	8.557	20	101.234	92.677	5.27	31.4	51.8	251.8	1234	6.79
990	MW144	19/01/2018	7.856	20	101.234	93.378	0.6	31.4	-	-	1172	6.6
990	MW144	18/12/2018	8.956	-	101.234	92.278	3.61	30.9	71.4	271.4	977	6.8
990	MW144	20/04/2020	9.914	-	101.234	91.32	0.65	31.9	185.3	385.3	1149	6.9
990	MW144	20/04/2021	5.18	20.11	101.234	96.054	1.17	27.3	89.5	289.5	950	6.89
990	MW144	9/10/2021	8.912	20.25	101.234	92.322	1.76	31.9	129	329	1334	6.43
990	MW144	18/10/2022	9.999	20.12	101.234	91.235	1.33	31.7	115	315	1120	6.99
990	**MW144**	**25/09/2023**	9.755	20.115	101.234	91.479	0.9	31	131.8	331.8	1120	6.75
990	MW149	20/10/2022	7.242	17.67	133.5	126.258	0.8	31.6	70.5	270.5	668	7.03
990	**MW149**	**20/09/2023**	6.437	17.661	133.5	127.063	1.17	29.5	63	263	638	6.99
990	MW223	23/07/2017	5.695	8.8	133.985	128.29	2.32	28.89	59.09	259.09	757	7.25
990	MW223	25/09/2017	6.383	8.8	133.985	127.602	0.81	30.8	-30.5	169.5	1131	6.82
990	MW223	28/03/2018	3.77	8.8	133.985	130.215	1.16	30.1	-57.2	142.8	1169	6.54
990	MW227	26/09/2017	3.305	16	132.122	128.817	1.62	32.4	103.2	303.2	504	7.21
990	MW227	26/11/2017	3.596	16	132.122	128.526	0.54	31.9	166.6	366.6	454.5	7.15
990	MW227	26/01/2018	1.421	16	132.122	130.701	1.05	31	85.6	285.6	388.4	7.05
990	**MW227**	**13/12/2023**	5.373	10.38	132.12	126.747	3.25	35.1	-101.8	98.2	284.8	7.4
990	MW228	26/09/2017	3.663	20	132.521	128.858	1.5	32.3	106.1	306.1	914	6.84
990	MW228	26/11/2017	3.949	20	132.521	128.572	0.37	31.7	169.4	369.4	772	6.92
990	MW228	27/01/2018	1.765	20	132.521	130.756	1.23	30.4	58	258	519	7.7

Table T1
Current and Historical Groundwater Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T1 - Historical Groundwater Gauging and Water Quality Parameters

AECOM

			Depth to Water	Well Depth	TOC	Water Elevation	DO	Temperature	Redox Potential	Redox Potential Corrected	Electrical Conductivity	pH
990	MW228	16/03/2018	2.915	20	132.521	129.606	1.45	31	150.4	350.4	835	7.18
990	MW229	26/09/2017	3.72	17.5	142.381	138.661	1.35	32.5	121.1	321.1	678	7.09
990	MW229	26/11/2017	4.012	17.5	142.381	138.369	0.37	30.5	142.3	342.3	817	6.83
990	MW229	27/01/2018	1.829	17.5	142.381	140.552	0.66	29.2	37.8	237.8	777	7.86
990	MW229	16/03/2018	1.955	17.5	142.381	140.426	4.95	30.1	140.4	340.4	411	7.72
990	MW230	23/07/2017	5.94	20	134.939	128.999	3.7	30.39	108	308	1337	7.78
990	MW230	24/09/2017	6.754	20	134.939	128.185	1.59	29.2	66.1	266.1	1472	8.08
990	MW230	27/11/2017	7.226	20	134.939	127.713	1.07	29.4	180.1	380.1	1317	7.16
990	MW230	28/03/2018	4.402	20	134.939	130.537	2.36	30.6	81.4	281.4	706	7.05
990	MW230	18/12/2018	7.612	20	134.939	127.327	1.67	28.9	46.9	246.9	215.5	7.68
990	MW231	23/07/2017	3.56	24	134.524	130.964	1.34	29.7	11.1	211.1	169	6.2
990	MW231	24/09/2017	4.264	24	134.524	130.26	1.01	32	31.2	231.2	235	5.67
990	MW231	28/03/2018	1.927	24	134.524	132.597	1.27	30.5	89.1	289.1	117	5.64
990	MW231	18/12/2018	5.905	24	134.524	128.619	4	30.3	86	286	102	6.57
990	MW231	23/04/2020	8.693	24.101	134.524	125.831	0.84	30.9	126.4	326.4	166.9	6.54
990	MW231	21/04/2021	2.154	24.1	134.524	132.37	0.58	31.7	18.7	218.7	220.1	6.9
990	MW231	8/10/2021	4.546	23.9	134.524	129.978	0.8	30.1	-17.2	182.8	320.8	7.43
990	MW231	18/10/2022	6.606	23.59	134.524	127.918	0.67	32	-	-	342.3	6.47
990	**MW231**	**19/09/2023**	7.964	24	134.524	126.56	1.12	30.6	-112.4	87.6	372.4	6.28
990	MW232	24/09/2017	6.396	18	135.416	129.02	1.03	32	103.4	303.4	1109	6.86
990	MW232	28/03/2018	4.201	18	135.416	131.215	4.32	30	79.9	279.9	844	7.15
990	MW233	24/09/2017	6.414	17	144.426	138.012	0.84	32.2	73.3	273.3	900	6.85
990	MW233	27/11/2017	6.832	17	144.426	137.594	0.92	28.3	194.3	394.3	808	6.71
990	MW233	2/02/2018	2.539	17	144.426	141.887	2.34	27.9	131.3	331.3	489.3	6.63
990	MW233	2/02/2018	2.539	17	144.426	141.887	2.34	27.9	131.3	331.3	489.3	6.63
990	MW233	28/03/2018	4.215	17	144.426	140.211	2.12	30.4	93.6	293.6	495	6.59
990	MW234	23/07/2017	5.56	10.2	134.202	128.642	1.29	29.1	112.5	312.5	940	6.88
990	MW234	24/09/2017	6.348	5.5	134.202	127.854	1.44	30.7	104.4	304.4	918	6.9
990	MW234	27/11/2017	6.768	5.5	134.202	127.434	1.08	28.8	81.9	281.9	519	6.79
990	MW234	28/03/2018	4.12	5.5	134.202	130.082	1.49	31	93.6	293.6	708	6.85
990	MW235	23/07/2017	5.39	19	145.964	140.574	3.21	29.1	106.59	306.59	534	7.63
990	MW235	24/09/2017	6.182	19	145.964	139.782	2.17	33	130.6	330.6	684	7.56
990	MW235	28/03/2018	3.729	19	145.964	142.235	2.67	30.8	91	291	502	7.09
990	MW236	24/09/2017	6.445	21	134.17	127.725	0.46	31	-47	153	503	6.73
990	MW236	27/11/2017	6.842	21	134.17	127.328	1.16	26.9	-41.7	158.3	548	6.6
990	MW236	28/03/2018	4.136	21	134.17	130.034	1.35	29.6	59.4	259.4	125	5.93
990	MW244	20/07/2017	9.525	20.6	142.96	133.435	0.1	31	-104	96	671	7.01
990	MW244	25/09/2017	10.162	20.6	142.96	132.798	0.25	33.2	-103	97	816	6.93
990	MW244	27/11/2017	10.728	20.6	142.96	132.232	0.42	31.2	-25.6	174.4	642	6.85
990	MW244	27/03/2018	9.214	20.6	142.96	133.746	0.36	33.3	-119.1	80.9	529	6.47
990	MW244	18/12/2018	11.382	-	142.96	131.578	2.54	32.1	-106.1	93.9	236	4.67
990	MW244	23/04/2020	13.568	21	142.96	129.392	0.88	32.5	-77.3	122.7	1040	6.96
990	MW244	21/04/2021	11.3	21	142.96	131.66	0.68	34.7	111.2	311.2	881	7.23
990	MW244	9/10/2021	12.346	20.75	142.96	130.614	0.98	32.4	-109.9	90.1	795	7.64
990	MW244	18/10/2022	13.565	26.63	142.96	129.395	1.37	31.3	-96.4	103.6	849	6.77
990	**MW244**	**20/09/2023**	12.564	20.56	142.96	130.396	3.29	34.3	-54.7	145.3	894	6.7
990	MW247	22/07/2017	10.053	12.8	143.11	133.057	2.2	31.8	88.19	288.19	1108	6.78
990	MW247	25/09/2017	10.668	12.8	143.11	132.442	0.96	34.1	67.3	267.3	1136	6.8
990	MW247	27/03/2018	9.684	12.8	143.11	133.426	1.22	32.1	71.1	271.1	1010	6.55
990	MW252	22/07/2017	7.84	20.9	140.79	132.95	2.31	32.9	106.9	306.9	1013	6.84
990	MW256	26/09/2017	5.463	20	135.27	129.807	1.13	32.8	18.8	218.8	1000	6.76
990	MW256	28/11/2017	5.765	20	135.27	129.505	0.86	29.9	105.3	305.3	903	6.76
990	MW256	25/01/2018	3.862	20	135.27	131.408	0.8	31	-	-	895	8.53
990	MW262	23/07/2017	5.07	9.1	133.6	128.53	3.44	28.6	137.3	337.3	923	7.01
990	MW262	25/09/2017	5.856	9.1	133.6	127.744	1.35	30.6	79.3	279.3	969	6.83
990	MW262	27/11/2017	6.378	9.1	133.6	127.222	0.68	29	164.9	364.9	862	6.79
990	MW262	16/03/2018	3.585	9.1	133.6	130.015	3.64	31	392.1	592.1	895	7.55
990	MW278	2/05/2017	5.687	22.9	139.46	133.773	2.94	34.4	206.5	406.5	182.39	6.23
990	MW278	20/07/2017	6.806	22.9	139.46	132.654	3.49	32.5	100.9	300.9	195	6.36
990	MW278	28/09/2017	7.468	22.9	139.46	131.992	2.64	31.9	109.3	309.3	267.7	6.6
990	MW278	28/11/2017	7.864	22.9	139.46	131.596	1.87	30.4	103.3	303.3	246.5	6.57
990	MW278	27/03/2018	-	-	-	-	3.66	31.6	121.2	321.2	168	6.11
990	MW278	17/01/2019	8.358	22.9	139.46	131.102	4.21	31.5	81.5	281.5	192	7.67
990	MW278	23/04/2020	10.302	22.86	139.46	129.158	34.4	32.2	157.5	357.5	303.7	7.27
990	MW278	19/04/2021	2.174	22.8	139.46	137.286	1.72	31.6	107.8	307.8	409.1	6.94
990	MW278	8/10/2021	9.234	23.02	139.46	130.226	3.29	32.4	81.4	281.4	317.9	7.63
990	MW278	18/10/2022	10.375	27.95	139.46	129.085	1.7	30.5	104.7	304.7	510	6.71
990	**MW278**	**20/09/2023**	9.405	23.1	139.46	130.055	1.27	31.4	92.1	292.1	374.6	6.48
990	MW281	2/05/2017	5.96	7	139.7	133.74	1.05	32.5	74.4	274.4	992	6.57
990	MW281	20/07/2017	6.228	7	139.7	133.472	0.99	32.79	-99.8	100.2	589	6.82
990	MW284	28/09/2017	4.207	19.1	132.62	128.413	1.08	32.4	125.4	325.4	895	6.8
990	MW284	28/11/2017	4.377	19.1	132.62	128.243	1.47	30.1	132.3	332.3	676	6.89
990	MW284	29/01/2018	2.154	19.1	132.62	130.466	1.09	30.3	55.6	255.6	545	9
990	MW284	27/03/2018	-	-	-	-	1.72	33.1	104.5	304.5	827	6.73
990	MW285	20/07/2017	3.557	18	131.43	127.873	1.85	30.7	108	308	895	6.8
990	MW285	28/09/2017	3.454	18	131.43	127.976	0.92	34	11.2	211.2	907	6.93
990	MW285	28/11/2017	3.595	18	131.43	127.835	1.13	32.6	133.6	333.6	856	6.88
990	MW285	29/01/2018	1.263	18	131.43	130.167	0.81	30.5	37.1	237.1	631	8.96
990	MW285	27/03/2018	-	-	-	-	2	33.9	116.5	316.5	713	6.87
990	MW285	18/12/2018	4.041	18.58	131.43	127.389	4.09	31.4	86.1	286.1	197.8	6.8
990	MW285	23/04/2020	5.816	18.6	131.43	125.614	1.07	31.9	166.6	366.6	849	6.96
990	MW285	19/04/2021	2.19	18.6	131.43	129.24	0.79	30.8	115.1	315.1	775	6.78
990	MW285	7/10/2021	5.734	18.75	131.43	125.696	1.33	31.9	76.8	276.8	77.9	7.6
990	MW285	18/10/2022	5.845	18.7	131.43	125.585	0.67	30.9	87.9	287.9	863	6.81
990	**MW285**	**20/09/2023**	5.012	21.03	131.43	126.418	1.05	32.1	100.6	300.6	795	6.66
990	MW286	20/07/2017	2.956	15.5	131.42	128.464	2.22	32.59	103	303	924	6.73
990	MW286	28/09/2017	3.606	15.5	131.42	127.814	0.77	31.6	144.7	344.7	936	6.65
990	MW286	28/11/2017	3.711	15.5	131.42	127.709	0.97	31.2	144.2	344.2	870	6.86
990	MW286	29/01/2018	1.345	15.5	131.42	130.075	1.21	30.8	32.8	232.8	828	9.41
990	MW286	27/03/2018	1.925	15.5	131.42	129.495	1.21	33	105.2	305.2	896	6.67
990	MW292	20/07/2017	10.133	18	144.33	134.197	3.75	31.2	59	259	980	6.8
990	MW292	26/09/2017	10.791	18	144.33	133.539	1.26	32.7	102.4	302.4	1006	6.66
990	MW292	27/11/2017	11.44	18	144.33	132.89	0.4	30.5	176	376	912	6.81
990	MW292	20/01/2018	11.471	18	144.33	132.859	0.3	30.5	-	-	867	6.62
990	MW292	27/03/2018	9.383	18	144.33	134.947	2.43	31.3	100.1	300.1	890	6.67
990	MW293	27/01/2018	2.503	13.5	132.975	130.472	1.53	30.2	67.1	267.1	540	7.88
990	MW293	16/03/2018	2.753	13.5	132.975	130.222	4.04	29.6	150.2	350.2	829	7.36
990	MW296	26/09/2017	4.571	10.2	130.14	125.569	0.71	29.4	73	273	915	6.64
990	MW296	26/01/2018	2.539	10.2	130.14	127.601	2.34	27.9	131.3	331.3	589	6.63
990	MW296	16/03/2018	2.53	10.2	130.14	127.61	4.76	31.4	175.8	375.8	704	7.54
990	MW297	25/09/2017	4.868	7.2	132.401	127.533	1.13	30.6	90.9	290.9	533	7.15
990	MW297	27/11/2017	5.269	7.2	132.401	127.132	1.52	28	71.4	271.4	507	7.2
990	MW297	28/03/2018	2.759	7.2	132.401	129.642	1.32	29.5	63	263	547	7.23
990	MW302	23/07/2017	4.8	12.8	137.755	132.955	3	31.2	89	289	645	7.8
990	MW302	29/03/2018	4.155	12.8	137.755	133.6	4.32	30.4	94.7	294.7	654	7.24
990	MW306	2/05/2017	9.729	21	142.85	133.121	0.93	33.29	93.4	293.4	-	6.67
990	MW306	20/07/2017	9.504	21	142.85	133.346	3.54	31.2	53	253	1627	6.94
990	MW306	25/09/2017	10.157	21	142.85	132.693	1.07	31.9	145.2	345.2	1676	6.74
990	MW306	27/11/2017	10.694	21	142.85	132.156	0.42	31.7	212.8	412.8	1564	6.74
990	MW306	27/03/2018	9.145	21	142.85	133.705	2.15	32.3	48.7	248.7	1899	6.58
990	MW309	25/09/2017	10.418	20	143.29	132.872	1.2	33	119	319	1085	6.69
990	MW309	27/11/2017	10.976	20	143.29	132.314	0.52	30.8	187.9	387.9	995	6.74
990	MW309	27/01/2018	10.754	20	143.29	132.536	0.84	30	43.3	243.3	934	8

Table T1
Current and Historical Groundwater Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T1 - Historical Groundwater Gauging and Water Quality Parameters

AECOM

			Depth to Water	Well Depth	TOC	Water Elevation	DO	Temperature	Redox Potential	Redox Potential Corrected	Electrical Conductivity	pH
990	MW309	27/03/2018	-	-	-	-	2.16	31.9	74.3	274.3	991	6.59
990	MW400	14/05/2018	4.8	-	-	-	2.64	27.86	196.9	396.9	814.2	6.51
990	MW400	19/12/2018	9.518	-	-	-	1.55	30.5	-4.7	195.3	542	6.96
990	MW400	24/04/2020	12.544	-	-	-	1.1	30.3	149.8	349.8	826	6.93
990	MW400	20/04/2021	7.864	-	-	-	1.38	30.4	74.4	274.4	797	7.28
990	MW400	9/10/2021	9.834	-	-	-	0.6	31.8	103	303	770	7.9
990	MW400	19/10/2022	11.964	-	-	-	0.47	-	-45.1	154.9	831	7.36
990	MW400	25/09/2023	11.074	-	-	-	0.75	30.9	-63.2	136.8	816	7.15
990	MW403	23/09/2017	8.165	10.5	-	-	2.01	32.1	29	229	866	7.51
990	MW403	26/11/2017	8.835	10.5	-	-	0.37	30.6	184.1	384.1	799	6.92
990	MW403	20/04/2021	7.719	11.36	-	-	0.64	31.8	-40.1	159.9	1098	6.92
990	MW403	9/10/2021	9.824	11.43	-	-	0.8	31.9	110.6	310.6	828	7.38
990	MW403	19/09/2023	10.225	11.45	-	-	0.75	29.2	5.1	205.1	812	6.77
990	MW405	26/09/2017	2.984	12	131.83	128.846	0.97	30.9	117	317	571	7.05
990	MW405	26/11/2017	3.254	12	131.83	128.576	0.34	30.9	147.6	347.6	418.9	7.1
990	MW405	26/01/2018	1.088	12	131.83	130.742	1.02	29.1	130.1	330.1	253.1	6.64
990	MW405	16/03/2018	1.223	12	131.83	130.607	2.9	29.8	157.3	357.3	790	7.46
990	MW405	18/12/2018	3.704	12	131.83	128.126	3.71	31.6	91.9	291.9	420	7.07
990	MW406	26/09/2017	3.882	19.8	132.702	128.82	1.23	32.6	92.1	292.1	447.8	7.31
990	MW406	16/03/2018	2.115	19.8	132.702	130.587	3.59	30.2	172.8	372.8	553	7.41
990	MW406	23/04/2020	6.431	19.602	132.702	126.271	1.1	32.2	177.7	377.7	821	6.92
990	MW406	19/04/2021	2.805	19.28	132.702	129.897	1.07	29.3	107.6	307.6	743	7.55
990	MW406	9/10/2021	5.306	19.29	132.702	127.396	1.26	32.2	81	281	569	7.68
990	MW406	13/12/2023	6.436	17.66	132.7	126.264	1.5	34.7	67.8	267.8	281.9	7.44
990	MW420	26/09/2017	6.588	-	139.14	132.552	0.59	32.2	-132.4	67.6	633	7.11
990	MW420	27/11/2017	6.985	-	139.14	132.155	0.37	30.9	-104.1	95.9	545	6.94
990	MW420	27/01/2018	5.764	-	139.14	133.376	0.56	32	-	-	547	8.25
990	MW420	21/03/2018	5.06	-	139.14	134.08	1.93	31.1	150.6	350.6	579	7.67
990	MW421	23/07/2017	5.798	-	-	-	2.21	28.2	113	313	872	7.01
990	MW421	25/09/2017	6.638	-	-	-	1.67	31.3	141	341	906	6.62
990	MW421	27/11/2017	7.061	-	-	-	0.59	29.4	179.2	379.2	856	6.81
990	MW422	23/07/2017	4.048	-	-	-	3.6	28.29	128	328	674	7.42
990	MW422	21/09/2017	4.925	-	-	-	2.54	30.4	110	310	891	7.35
990	MW422	27/11/2017	5.368	-	-	-	1.2	26.5	125	325	800	6.85
990	MW424	26/09/2017	3.576	10	-	-	0.63	32	-112	88	877	6.92
990	MW424	25/11/2017	3.854	10	-	-	1.25	31.2	-80.4	119.6	804	7.04
990	MW426	25/09/2017	3.292	12.3	-	-	1.06	30.4	-7	193	1063	7.02
990	MW528	4/12/2019	18.457	-	-	-	1.19	36.5	135.3	335.3	493.5	6.6
990	MW528	21/04/2020	18.256	-	-	-	17	33.4	78.9	278.9	351.2	7.01
990	MW528	20/07/2020	18.73	-	-	-	3.4	30	240.2	440.2	410.2	6.84
990	MW528	16/11/2020	18.915	-	-	-	0.52	30.3	110.2	310.2	931	7.29
990	MW528	10/12/2020	18.906	-	-	-	1.35	32.2	159.3	359.3	867	7.61
990	MW528	2/02/2021	16.4	-	-	-	1.34	30.6	-77.2	122.8	405.9	8.08
990	MW528	23/04/2021	16.02	-	-	-	0.73	30.2	-27.9	172.1	309.7	7.34
990	MW528	6/07/2021	16.99	-	-	-	1.09	-	67	267	329.8	7.24
990	MW528	10/10/2021	17.644	-	-	-	1.42	32.2	170.6	370.6	319.9	7.4
990	MW732	12/05/2017	6.53	46.9	-	-	2.66	31.9	150.8	350.8	1004	6.88
990	MW732	19/07/2017	7.542	46.9	-	-	0.43	30.7	-17.2	182.8	731	8.63
990	MW732	26/09/2017	9.25	46.9	-	-	3.5	33	119.3	319.3	887	6.8
990	MW732	27/11/2017	9.617	46.9	-	-	2.68	32.3	109.4	309.4	898	7.03
990	MW732	21/04/2020	13.44	46.9	-	-	15.4	29.5	-121	79	598	6.93
990	MW732	9/10/2021	10.803	46.9	-	-	1	31.8	-107.7	92.3	129.7	8.03
990	MW732	19/10/2022	13.286	46.9	-	-	0.55	31.4	-120.2	79.8	233.2	-
990	MW732	25/09/2023	11.982	46.9			0.89	30.2	-176.9	23.1	150.2	6.96
990	MW734	12/05/2017	1.68	80.9	-	-	1.14	28.4	-96	104	261.2	6.54
990	MW734	20/07/2017	2.663	80.9	-	-	0.47	30.9	24.9	224.9	1276	7.84
990	MW734	23/09/2017	3.334	80.9	-	-	1.2	28.8	111	311	1141	7.3
990	MW734	27/11/2017	3.187	80.9	-	-	1.34	32	122	322	1164	7.54
990	MW734	26/01/2018	0.081	80.9	-	-	0.48	29.8	142.3	342.3	1017	7.04
990	MW734	21/03/2018	0.762	80.9	-	-	0.8	30.8	167.5	367.5	754	6.51
990	MW735	21/10/2022	11.731	-	-	-	1	30.1	-8.5	191.5	224.3	8.25
990	OTH111	27/03/2018	-	-	-	-	2.99	32.1	105.5	305.5	855	6.77
990	OTH111	18/12/2018	-	-	-	-	4.22	29.7	55.6	255.6	440	7.77
990	OTH111	23/04/2020	-	-	-	-	1.88	32.7	113.9	313.9	826	6.91
990	OTH111	21/04/2021	-	-	-	-	1.48	32.9	69.3	269.3	793	7.27
990	OTH111	9/10/2021	-	-	-	-	3.45	31.7	61.4	261.4	474.4	8.23
990	OTH111	18/10/2022	-	-	-	-	0.97	31.6	128.3	328.3	321.7	6.78
990	OTH111	26/09/2023	14.02	64	-	-	2.84	32	63.4	263.4	494.4	7.71
990	OTH112	22/04/2020	-	-	-	-	1.53	29.4	81.3	281.3	870	6.98
990	OTH112	22/04/2021	-	-	-	-	1.28	37.8	117.9	317.9	989	7.1
990	OTH112	7/10/2021	-	-	-	-	1.16	30.7	72.8	272.8	994	7.68
990	OTH112	20/10/2022	-	-	-	-	-	-	-	-	-	-
990	OTH112	26/09/2023	-	-	-	-	4.3	34.4	97.1	297.1	1021	6.7
990	OTH113	21/04/2020	-	-	-	-	3.5	32.4	144.9	344.9	869	7.31
990	OTH113	22/04/2021	-	-	-	-	2.14	31.9	131.1	331.1	819	7.02
990	OTH113	10/10/2021	-	-	-	-	2.85	31.2	100.7	300.7	848	7.42
990	OTH113	20/10/2022	-	-	-	-	1.52	38.3	167.8	367.8	968	7
990	OTH113	18/09/2023	-	-	-	-	2.75	32	101.8	301.8	879.1	7.44
990	OTH114	31/10/2019	16.524	-	-	-	0.83	32.2	43.9	243.9	413.5	7.35
990	OTH114	21/04/2020	-	-	-	-	0.99	32.8	177.7	377.7	851	6.87
990	OTH114	20/07/2020	-	-	-	-	1.27	31.7	207.8	407.8	871	6.65
990	OTH114	16/11/2020	-	-	-	-	1.18	33.2	182	382	962	6.94
990	OTH114	2/02/2021	-	-	-	-	0.93	31.5	193.1	393.1	648	7.38
990	OTH114	22/04/2021	-	-	-	-	0.57	38.4	115.8	315.8	834	6.9
990	OTH114	6/07/2021	-	-	-	-	0.89	29.5	97.6	297.6	816	7
990	OTH114	10/10/2021	-	-	-	-	0.83	33.1	168.5	368.5	864	6.96
990	OTH114	15/03/2022	-	-	-	-	3.12	32.8	-137.9	62.1	950	7.7
990	OTH114	20/10/2022	-	-	-	-	1.24	30.3	145.5	31.9	865	3.85
990	OTH114	15/03/2023	-	-	-	-	0.73	31.7	52	252	861	6.78
990	OTH115	23/04/2020	-	-	-	-	2.86	31.4	182	382	827	7.04
990	OTH115	23/04/2021	-	-	-	-	1.7	30.2	72.7	272.7	757	7.51
990	OTH115	8/10/2021	-	-	-	-	1.88	33.1	109.3	309.3	873	7.55
990	OTH115	20/10/2022	-	-	-	-	1.47	32	113.1	313.1	854	6.77
990	OTH115	18/09/2023	-	-	-	-	4.33	32.6	150.3	350.3	872.1	7.75
990	OTH116	24/04/2020	-	-	-	-	3.24	30	3.1	203.1	812	7.26
990	OTH116	10/10/2021	-	-	-	-	2.65	31.2	187	387	780	7.27
990	OTH116	25/09/2023	-	-	-	-	3.59	29.9	45.7	245.7	842	7.34
990	OTH117	30/11/2021	-	-	-	-	1.54	32.5	92.1	292.1	669	7.32
990	OTH117	11/01/2022	-	-	-	-	2.59	39.7	80.2	280.2	989	7.85
990	OTH117	16/02/2022	-	-	-	-	3.4	35.2	110.8	310.8	710	7.58
990	OTH117	16/03/2022	-	-	-	-	4.7	28.8	-18.2	181.8	712	7.62
990	OTH117	28/04/2022	-	-	-	-	8.31	26	83.5	283.5	651	7.39
990	OTH117	1/09/2022	-	-	-	-	3.76	23.7	45.1	245.1	679	7.32
990	OTH117	17/11/2022	-	-	-	-	2.56	27.3	108.9	308.9	734	7.28
990	OTH117	15/12/2022	-	-	-	-	2.11	29.4	63.3	263.3	687	7.33
990	OTH117	18/01/2023	-	-	-	-	2.6	41.6	183.7	383.7	909	7.3
990	OTH117	15/02/2023	-	-	-	-	2.3	43.8	100.9	300.9	915	7.43
990	OTH117	15/03/2023	-	-	-	-	2.83	29.6	62.9	262.9	767	7.1
990	OTH117	19/04/2023	-	-	-	-	0.42	27.6	-	-	729	7.51
990	OTH117	24/08/2023	-	-	-	-	6.58	25.4	96.6	296.6	614	7.55
990	OTH117	13/12/2023	-	-	-	-	1.98	31	89.8	289.8	750	6.9
990	OTH117	13/02/2024	-	-	-	-	1.96	26.1	23.4	223.4	602	-
990	OTH117	12/03/2024	-	-	-	-	1.66	30.5	70.4	270.4	699	6.87

Table T1
Current and Historical Groundwater Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T1 - Historical Groundwater Gauging and Water Quality Parameters

AECOM

			Depth to Water	Well Depth	TOC	Water Elevation	DO	Temperature	Redox Potential	Redox Potential Corrected	Electrical Conductivity	pH
990	OTH117	10/04/2024	-	-	-	-	4.81	28.1	76.8	276.8	776	6.75
990	OTH118	1/12/2021	-	-	-	-	3.42	31.8	116.5	316.5	652	7.86
990	OTH118	11/01/2022	-	-	-	-	3.95	35	97.3	297.3	848	7.14
990	OTH118	17/02/2022	-	-	-	-	2.77	30.8	137.2	337.2	722	7.51
990	OTH118	16/03/2022	-	-	-	-	3.21	30.2	-28.1	171.9	748	7.76
990	OTH118	28/04/2022	-	-	-	-	4.21	30.3	79.5	279.5	712	7.24
990	OTH118	1/09/2022	-	-	-	-	3.46	30.9	34.1	234.1	781	7.15
990	OTH118	16/11/2022	-	-	-	-	1.84	32.2	95.3	295.3	796	7.02
990	OTH118	14/12/2022	-	-	-	-	2.05	31	6.92	206.92	692	7.33
990	OTH118	18/01/2023	-	-	-	-	4.4	30.5	133.4	333.4	827	7.68
990	OTH118	18/01/2023	-	-	-	-	4.4	30.5	133.4	333.4	827	7.68
990	OTH118	18/04/2023	-	-	-	-	2.42	37.4	-	-	821	7.38
990	OTH118	21/06/2023	-	-	-	-	5.05	28.3	-	-	769	7.41
990	**OTH118**	24/08/2023	-	-	-	-	3.9	34.6	72.2	272.2	577	7.67
990	**OTH118**	13/11/2023	-	-	-	-	3.35	32	88	288	824	6.91
990	**OTH118**	12/12/2023	-	-	-	-	1.29	50.3	91.7	291.7	937	7.2
990	**OTH118**	16/01/2024	-	-	-	-	4.97	30.3	-89.9	110.1	697	6.85
990	**OTH118**	14/02/2024	-	-	-	-	3.35	31.3	-127.1	72.9	1163	-
990	**OTH118**	13/03/2024	-	-	-	-	4.18	31.7	64.7	264.7	1149	7.01
990	**OTH118**	10/04/2024	-	-	-	-	3.1	42.7	125.8	325.8	1102	7
990	OTH119	1/12/2021	-	-	-	-	0.86	32	115.7	315.7	703	7.36
990	OTH119	11/01/2022	-	-	-	-	1.32	35.5	58.8	258.8	493.7	7.97
990	OTH119	17/02/2022	-	-	-	-	2.17	28.1	130.6	330.6	726	7.67
990	OTH119	15/03/2022	-	-	-	-	2.79	36.2	-8.7	191.3	908	7.04
990	OTH119	28/04/2022	-	-	-	-	2.54	30.8	85.2	285.2	827	7.06
990	OTH119	31/08/2022	-	-	-	-	1.99	30.4	218.2	418.2	812	7.05
990	OTH119	16/11/2022	-	-	-	-	1.25	31.4	103.2	303.2	839	6.91
990	OTH119	14/12/2022	-	-	-	-	1.91	35.1	108.3	308.3	791	7.01
990	OTH119	18/01/2023	-	-	-	-	1.72	30.2	164.7	364.7	834	6.91
990	OTH119	15/02/2023	-	-	-	-	2.82	34.8	116.3	316.3	3.02	7.07
990	OTH119	15/03/2023	-	-	-	-	2.1	31.3	103.2	303.2	1180	6.85
990	OTH119	19/04/2023	-	-	-	-	5.89	20.1	-	-	783	7.07
990	**OTH119**	22/08/2023	-	-	-	-	1.78	30.2	95	295	713	6.64
990	**OTH119**	13/11/2023	-	-	-	-	3.22	32.7	85.8	285.8	852	7.07
990	**OTH119**	13/12/2023	-	-	-	-	3.55	33.2	100.4	300.4	846	6.89
990	**OTH119**	15/01/2024	-	-	-	-	4.32	29.2	11.1	211.1	719	7.01
990	**OTH119**	13/02/2024	-	-	-	-	5.51	29.8	40.5	240.5	12.2	-
990	**OTH119**	12/03/2024	-	-	-	-	3.55	31.4	58.7	258.7	1122	6.96
990	**OTH119**	10/04/2024	-	-	-	-	5.43	29.9	131.8	331.8	1073	6.99
990	OTH120	20/10/2022	-	-	-	-	2.17	30.4	84.3	284.3	779	7.11
990	OTH120	15/03/2023	-	-	-	-	2.43	32.7	-	-	301.8	7.59
990	**OTH120**	18/09/2023	-	-	-	-	3.57	34.5	137.2	337.2	780	7.12
990	OTH122	20/10/2022	-	-	-	-	2.34	31.9	126.7	326.7	849	7.08
990	OTH123	20/10/2022	-	-	-	-	2.17	30.4	84.3	284.3	779	7.11
990	OTH126	28/04/2022	-	-	-	-	2.11	32.3	78.7	278.7	710	7.07
990	**OTH130**	10/04/2024	-	-	-	-	3.97	31.2	118.7	318.7	823	6.72
990	**OTH131**	11/04/2024	-	-	-	-	4.26	29.6	118.6	318.6	760	6.73
990	POT111	21/04/2020	-	-	-	-	2.25	37.5	188.2	388.2	908	7.06
990	POT111	22/04/2021	-	-	-	-	3.07	27.6	82.4	282.4	695	7.66
990	POT111	11/10/2021	-	-	-	-	2.33	34	106.6	306.6	846	7.15
990	POT111	20/10/2022	-	-	-	-	1.67	34.9	109.2	309.2	889	6.97
990	**POT111**	18/09/2023	-	-	-	-	2.7	31.4	115.2	315.2	848	7.51
990	POT112	30/10/2019	-	-	-	-	4.37	25.8	87	287	731	7.12
990	POT112	21/04/2020	-	-	-	-	3.03	31.9	187.6	387.6	800	7.27
990	POT112	20/07/2020	-	-	-	-	2.05	29.9	145.3	345.3	873	6.87
990	POT112	16/11/2020	-	-	-	-	1.28	31.2	159.8	359.8	877	7.19
990	POT112	10/12/2020	-	-	-	-	0.63	32	-56.8	143.2	664	7.08
990	POT112	1/02/2021	-	-	-	-	1.4	31.6	151.9	351.9	857	8.27
990	POT112	22/04/2021	-	-	-	-	2.34	32.2	111.7	311.7	766	7.36
990	POT112	6/07/2021	-	-	-	-	2.04	28.9	68	268	758	7.36
990	POT112	11/10/2021	-	-	-	-	3.12	35.6	101.3	301.3	958	7.71
990	POT112	30/11/2021	-	-	-	-	2.69	37	95.5	295.5	739	7.65
990	POT112	11/01/2022	-	-	-	-	2.16	38.1	96.1	296.1	972	7.93
990	POT112	16/02/2022	-	-	-	-	3.89	39.1	109.3	309.3	991	7.39
990	POT112	15/03/2022	-	-	-	-	1.72	32.1	-65.4	134.6	781	8.05
990	POT112	28/04/2022	-	-	-	-	2.38	30.2	34.6	234.6	721	7.05
990	POT112	31/08/2022	-	-	-	-	1.22	31.9	120.1	320.1	857	7.01
990	POT112	16/11/2022	-	-	-	-	1.67	34.2	85.2	285.2	859	6.86
990	POT112	14/12/2022	-	-	-	-	1.21	36.4	108.3	308.3	802	6.85
990	POT112	18/01/2023	-	-	-	-	3.1	30.2	88.1	288.1	751	6.82
990	POT112	15/02/2023	-	-	-	-	0.91	38.8	5	205	905	6.82
990	POT112	15/03/2023	-	-	-	-	1.82	32	48.9	248.9	1155	6.91
990	POT112	19/04/2023	-	-	-	-	0.18	29.3	-	-	847	6.92
990	POT112	21/06/2023	-	-	-	-	6.84	36	-	-	967	6.89
990	**POT112**	23/08/2023	-	-	-	-	6.34	25.2	105.8	305.8	623	7.13
990	**POT112**	13/12/2023	-	-	-	-	2.24	33.8	110.2	310.2	821	6.79
990	**POT112**	15/01/2024	-	-	-	-	0.77	30.2	-76.6	123.4	718	6.94
990	**POT112**	13/02/2024	-	-	-	-	1.12	29.7	43.7	243.7	747	-
990	**POT112**	12/03/2024	-	-	-	-	0.59	30.1	-50.2	149.8	953	7.25
990	**POT112**	10/04/2024	-	-	-	-	4.43	27.7	124.4	324.4	841	6.9
990	POT113	30/10/2019	-	-	-	-	2.58	30.9	83.1	283.1	801	6.99
990	POT113	20/04/2020	-	-	-	-	2.2	31.5	199	399	796	7.14
990	POT113	20/07/2020	-	-	-	-	3.04	30.5	229.2	429.2	808	6.82
990	POT113	16/11/2020	-	-	-	-	2.3	32.2	162.6	362.6	898	7.11
990	POT113	1/02/2021	-	-	-	-	2.29	30.5	125.9	325.9	1214	8.2
990	POT113	22/04/2021	-	-	-	-	1.73	31.6	127.3	327.3	773	7.51
990	POT113	6/07/2021	-	-	-	-	2.32	27	69.1	269.1	790	7.62
990	POT113	11/10/2021	-	-	-	-	1.82	32.1	107.7	307.7	803	7.37
990	POT113	30/11/2021	-	-	-	-	1.84	31.7	62	262	707	7.19
990	POT113	11/01/2022	-	-	-	-	1.41	31.9	82	282	979	8.27
990	POT113	16/02/2022	-	-	-	-	2.19	32.6	119.8	319.8	1407	7.38
990	POT113	15/03/2022	-	-	-	-	3.4	31.1	-74.2	125.8	1085	7.92
990	POT113	28/04/2022	-	-	-	-	2.39	30.1	76.8	276.8	967	6.96
990	POT113	31/08/2022	-	-	-	-	1.62	31.1	130.2	330.2	943	6.97
990	POT113	16/11/2022	-	-	-	-	1.69	31.8	96.2	296.2	861	6.78
990	POT113	14/12/2022	-	-	-	-	1.9	31.8	101.2	301.2	730	6.82
990	POT113	18/01/2023	-	-	-	-	1.85	31	104	304	1084	6.82
990	POT113	15/02/2023	-	-	-	-	2.05	32.7	111.2	311.2	1086	6.87
990	POT113	15/03/2023	-	-	-	-	6.97	30.8	-	-	1102	6.97
990	POT113	19/04/2023	-	-	-	-	0.43	29	-	-	1070	6.89
990	POT113	21/06/2023	-	-	-	-	1.42	30.8	-	-	927	6.82
990	**POT113**	23/08/2023	-	-	-	-	2.63	29.7	96.8	296.8	680	6.96
990	**POT113**	13/11/2023	-	-	-	-	2.81	31	71.9	271.9	833	6.87
990	**POT113**	13/12/2023	-	-	-	-	3.54	31	104.7	304.7	848	6.84
990	**POT113**	15/01/2024	-	-	-	-	1.99	30.8	-22.7	177.3	1021	6.76
990	**POT113**	13/02/2024	-	-	-	-	1.79	30.8	-	-	977	-
990	**POT113**	12/03/2024	-	-	-	-	2.29	30.5	58.2	258.2	979	6.95
990	**POT113**	10/04/2024	-	-	-	-	4.4	29.2	133	333	793	6.94
990	POT114	30/10/2019	-	-	-	-	1.29	31.7	99.2	299.2	823	6.9
990	POT114	21/04/2020	-	-	-	-	1.65	31	153.1	353.1	755	7.06
990	POT114	20/07/2020	-	-	-	-	3.96	29.1	193.7	393.7	773	6.95
990	POT114	16/11/2020	-	-	-	-	1.78	32	204.7	404.7	889	7.25
990	POT114	1/02/2021	-	-	-	-	1.89	31.3	175.5	375.5	830	7.68

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Current and Historical Groundwater Field Results
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Table T1 - Historical Groundwater Gauging and Water Quality Parameters

AECOM

			Depth to Water	Well Depth	TOC	Water Elevation	DO	Temperature	Redox Potential	Redox Potential Corrected	Electrical Conductivity	pH
990	POT114	22/04/2021	-	-	-	-	1.83	31.2	113.4	313.4	680	7.43
990	POT114	6/07/2021	-	-	-	-	1.7	29.9	80.5	280.5	705	7.34
990	POT114	11/10/2021	-	-	-	-	2.76	31.4	138	338	771	7.34
990	POT114	30/11/2021	-	-	-	-	1.75	33.7	108.9	308.9	667	7.69
990	POT114	11/01/2022	-	-	-	-	1.79	33.3	91.1	291.1	868	7.63
990	POT114	17/02/2022	-	-	-	-	4.2	34.9	110.2	310.2	748	7.7
990	POT114	15/03/2022	-	-	-	-	2.58	30.4	-56.6	143.4	727	7.98
990	POT114	28/04/2022	-	-	-	-	3.69	29	95.6	295.6	681	7.08
990	POT114	1/09/2022	-	-	-	-	5.07	31	89.7	289.7	795	7.15
990	POT114	16/11/2022	-	-	-	-	1.17	33.9	120.2	320.2	856	6.92
990	POT114	15/02/2023	-	-	-	-	2.8	30.4	97	297	2.63	7.1
990	POT114	15/03/2023	-	-	-	-	0.88	30.5	91.8	291.8	815	6.95
990	POT114	18/04/2023	-	-	-	-	0.67	29	-	-	774	6.9
990	POT114	23/08/2023	-	-	-	-	2.2	29.6	84.1	284.1	689	7.11
990	POT114	13/11/2023	-	-	-	-	1.69	32.5	85.5	285.5	838	7.02
990	POT114	12/12/2023	-	-	-	-	1.51	34.2	84.4	284.4	812	7.02
990	POT114	14/02/2024	-	-	-	-	2.83	28.8	-131.8	68.2	722	6.9
990	POT114	13/03/2024	-	-	-	-	3.24	30.1	63.5	263.5	722	6.9
990	POT114	11/04/2024	-	-	-	-	4.87	25.1	106.8	306.8	654	6.79
990	POT119	21/04/2020	-	-	-	-	2.6	30.1	154.8	354.8	772	7.2
990	POT119	22/04/2021	-	-	-	-	1.42	24.9	47.8	247.8	650	7.5
990	POT120	30/10/2019	-	-	-	-	5.81	17.7	86.7	286.7	596	6.97
990	POT120	21/04/2020	-	-	-	-	1.61	31.6	155.5	355.5	792	7.1
990	POT120	20/07/2020	-	-	-	-	5.71	28.4	-175.1	24.9	756	7.13
990	POT120	16/11/2020	-	-	-	-	1.85	32.4	190.6	390.6	892	7.27
990	POT120	1/02/2021	-	-	-	-	2.04	31.6	172.2	372.2	1048	7.75
990	POT120	22/04/2021	-	-	-	-	1.17	34	113.7	313.7	780	7.16
990	POT120	6/07/2021	-	-	-	-	1.56	29.8	79	279	770	7.32
990	POT120	11/10/2021	-	-	-	-	1.47	31.5	121.8	321.8	794	7.21
990	POT120	30/11/2021	-	-	-	-	2.99	34.4	99.1	299.1	696	7.54
990	POT120	11/01/2022	-	-	-	-	1.12	34.1	77	277	877	8.04
990	POT120	16/02/2022	-	-	-	-	4.49	32.3	99.9	299.9	766	8.29
990	POT120	15/03/2022	-	-	-	-	3.26	32.7	-67.2	132.8	779	7.9
990	POT120	28/04/2022	-	-	-	-	5.74	28.8	63.1	263.1	698	7.41
990	POT120	31/08/2022	-	-	-	-	3.04	33.9	29.2	229.2	836	7.38
990	POT120	16/11/2022	-	-	-	-	1.99	35	114.9	314.9	847	7.31
990	POT120	14/12/2022	-	-	-	-	1.98	36.6	105.2	305.2	7.81	7.23
990	POT120	18/01/2023	-	-	-	-	4.8	31.7	152.13	352.13	792	7.29
990	POT120	15/02/2023	-	-	-	-	3.4	33.5	90.4	290.4	767	7.21
990	POT120	15/03/2023	-	-	-	-	3.68	35.5	90.3	290.3	937	7.36
990	POT120	26/07/2023	-	-	-	-	4.85	24.9	-	-	622	7.46
990	POT120	22/08/2023	-	-	-	-	3.84	31.8	73.1	273.1	723	7.2
990	POT120	13/11/2023	-	-	-	-	4.01	33.1	90.9	290.9	841	7.47
990	POT120	12/12/2023	-	-	-	-	3.42	29.7	87.6	287.6	729	4.36
990	POT120	16/01/2024	-	-	-	-	5.62	29.4	-76.5	123.5	710	7.29
990	POT120	14/02/2024	-	-	-	-	5.85	25.9	-116.2	83.8	689	7.26
990	POT120	13/03/2024	-	-	-	-	3.39	29.1	101.6	301.6	833	7.24
990	POT120	10/04/2024	-	-	-	-	5.51	30	124.5	324.5	695	7
990	POT121	30/10/2019	-	-	-	-	3.86	28.5	106.4	306.4	739	7.3
990	POT121	21/04/2020	-	-	-	-	41.8	34	150.2	350.2	797	7.43
990	POT121	20/07/2020	-	-	-	-	3.94	26.3	169	369	727	7.02
990	POT121	16/11/2020	-	-	-	-	3.59	33.4	103.7	303.7	891	7.46
990	POT121	2/02/2021	-	-	-	-	4.32	26.3	169	369	824	7.02
990	POT121	22/04/2021	-	-	-	-	2.6	31.1	106.5	306.5	759	7.5
990	POT121	6/07/2021	-	-	-	-	3.33	28.6	68.7	268.7	748	7.62
990	POT121	11/10/2021	-	-	-	-	3.52	32.6	105.1	305.1	789	7.37
990	POT121	15/02/2023	-	-	-	-	3.88	29.8	94.2	294.2	677	7.51
990	POT121	16/03/2023	-	-	-	-	4.39	27.9	75.9	275.9	785	7.39
990	POT121	19/04/2023	-	-	-	-	0.51	24.6	-	-	686	7.67
990	POT121	23/08/2023	-	-	-	-	4.98	27	84.1	284.1	634	7.39
990	POT121	14/11/2023	-	-	-	-	3.62	29.6	76.3	276.3	739	7.65
990	POT121	12/12/2023	-	-	-	-	4.41	33	70.6	270.6	768	7.54
990	POT121	15/01/2024	-	-	-	-	4.93	29.6	28.1	228.1	723	7.49
990	POT121	13/02/2024	-	-	-	-	5.38	28.6	38.1	238.1	644	-
990	POT121	12/03/2024	-	-	-	-	5.18	27.7	74.8	274.8	680	7.62
990	POT121	10/04/2024	-	-	-	-	5.63	24.5	107.6	307.6	704	7.17
990	POT122	30/10/2019	-	-	-	-	4.23	27.7	62.7	262.7	789	7.35
990	POT122	21/04/2020	-	-	-	-	3.9	31.2	177.6	377.6	831	7.44
990	POT122	20/07/2020	-	-	-	-	4.91	29.4	192.9	392.9	836	6.92
990	POT122	16/11/2020	-	-	-	-	3.38	31	186.7	386.7	925	7.28
990	POT122	2/02/2021	-	-	-	-	3.02	30.6	124.4	324.4	823	7.67
990	POT122	22/04/2021	-	-	-	-	2.91	34	115.8	315.8	817	7.08
990	POT122	6/07/2021	-	-	-	-	3.2	27	91.7	291.7	813	7.33
990	POT122	30/11/2021	-	-	-	-	2.25	34.7	107.3	307.3	774	7.8
990	POT122	11/01/2022	-	-	-	-	2.5	32.9	97.4	297.4	929	7.81
990	POT123	10/10/2021	-	-	-	-	2.2	30.3	72.2	272.2	676	7.38
990	POT124	30/11/2021	-	-	-	-	1.46	30	68.5	268.5	634	8.02
990	POT124	11/01/2022	-	-	-	-	2	29	111.9	311.9	773	7.09
990	POT124	17/02/2022	-	-	-	-	1.6	26.8	102.5	302.5	660	7.42
990	POT124	16/03/2022	-	-	-	-	2.01	28.9	-23	177	729	7.46
990	POT124	28/04/2022	-	-	-	-	1.99	29.9	90.2	290.2	727	7.1
990	POT124	1/09/2022	-	-	-	-	3.62	29.1	30.6	230.6	778	6.88
990	POT124	17/11/2022	-	-	-	-	1.26	29.6	115.7	315.7	771	6.92
990	POT124	15/12/2022	-	-	-	-	1.84	29.7	76.3	276.3	696	6.95
990	POT124	18/01/2023	-	-	-	-	2.1	30.6	152.6	352.6	759	6.97
990	POT124	15/02/2023	-	-	-	-	1.8	31.6	89.3	289.3	746	7.04
990	POT124	15/03/2023	-	-	-	-	0.74	31	89.1	289.1	813	6.9
990	POT124	18/04/2023	-	-	-	-	0.65	30.1	-	-	747	6.82
990	POT124	21/06/2023	-	-	-	-	4.21	35.4	-	-	881	6.9
990	POT124	24/08/2023	-	-	-	-	4.34	28.5	97.1	297.1	702	6.79
990	POT124	13/11/2023	-	-	-	-	2.41	31.6	92.2	292.2	810	6.98
990	POT124	12/12/2023	-	-	-	-	1.64	31.2	88.7	288.7	774	6.9
990	POT124	16/01/2024	-	-	-	-	3.1	29.1	-82.3	117.7	730	6.97
990	POT124	13/02/2024	-	-	-	-	2.12	28.8	-141.1	58.9	733	-
990	POT124	13/03/2024	-	-	-	-	0.81	29.5	74	274	714	6.89
990	POT124	11/04/2024	-	-	-	-	4.48	28	85.9	285.9	748	6.69
990	POT125	1/12/2021	-	-	-	-	2.86	32.7	66.6	266.6	629	7.83
990	POT125	12/01/2022	-	-	-	-	4.44	24.7	108.4	308.4	679	7.12
990	POT125	17/02/2022	-	-	-	-	2.4	28.2	121.1	321.1	789	7.52
990	POT125	16/03/2022	-	-	-	-	6.47	29.8	-50	150	1431	7.48
990	POT125	28/04/2022	-	-	-	-	3.31	31.8	81.3	281.3	805	7.31
990	POT125	31/08/2022	-	-	-	-	2.85	31.5	99.6	299.6	774	7.42
990	POT125	16/11/2022	-	-	-	-	1.55	39	106.2	306.2	663	7.76
990	POT125	14/12/2022	-	-	-	-	2.03	32.1	91.8	291.8	703	7.32
990	POT125	18/01/2023	-	-	-	-	2.14	43.4	175.6	375.6	779	7.68
990	POT125	15/02/2023	-	-	-	-	2.24	44.9	86.4	286.4	815	7.45
990	POT125	15/03/2023	-	-	-	-	3.59	36.4	31.2	231.2	941	7.65
990	POT125	19/04/2023	-	-	-	-	0.43	24.6	-	-	642	7.42
990	POT125	24/08/2023	-	-	-	-	3.03	28.4	88.3	288.3	628	7.04
990	POT125	13/11/2023	-	-	-	-	4.01	35.4	91.1	291.1	824	7.24
990	POT125	12/12/2023	-	-	-	-	2.92	42.9	91.8	291.8	741	7.54
990	POT125	15/01/2024	-	-	-	-	5.01	27.4	22.5	222.5	623	7.53
990	POT125	13/02/2024	-	-	-	-	3.96	31.6	74.6	274.6	683	-

Table T1
Current and Historical Groundwater Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T1 - Historical Groundwater Gauging and Water Quality Parameters

AECOM

			Depth to Water	Well Depth	TOC	Water Elevation	DO	Temperature	Redox Potential	Redox Potential Corrected	Electrical Conductivity	pH
990	POT125	12/03/2024	-	-	-	-	1.63	31.9	50.2	250.2	755	6.92
990	POT125	11/04/2024	-	-	-	-	3.78	30.7	131	331	709	6.69
990	POT126	1/12/2021	-	-	-	-	1.44	33.2	92.3	292.3	653	7.72
990	POT126	12/01/2022	-	-	-	-	2.49	29.5	121.7	321.7	743	7.14
990	POT126	17/02/2022	-	-	-	-	1.58	30.4	125.7	325.7	683	7.43
990	POT126	16/03/2022	-	-	-	-	3.19	31.6	40.2	240.2	734	7.79
990	POT126	31/08/2022	-	-	-	-	3.68	32.4	154.3	354.3	793	7.04
990	POT126	16/11/2022	-	-	-	-	1.99	32.1	102.9	302.9	777	7.06
990	POT126	14/12/2022	-	-	-	-	1.57	34.4	90.5	290.5	736	6.88
990	POT126	18/01/2023	-	-	-	-	2.3	41.3	192.12	392.12	513	7.81
990	POT126	15/02/2023	-	-	-	-	1.49	36.4	104.9	304.9	789	6.88
990	POT126	15/03/2023	-	-	-	-	2	33.1	93.2	293.2	746	6.95
990	POT126	19/04/2023	-	-	-	-	0.19	29.6	-	-	721	6.89
990	POT126	22/08/2023					2.44	31.7	79.2	279.2	680	6.85
990	POT126	13/11/2023					2.13	31.6	71.4	271.4	773	6.97
990	POT126	10/04/2024	-	-	-	-	3.66	31.2	134.7	334.7	728	6.86
990	POT127	1/12/2021	-	-	-	-	2	38	120.3	320.3	724	8.1
990	POT127	11/01/2022	-	-	-	-	1.01	36.3	107.7	307.7	895	7.24
990	POT127	17/02/2022	-	-	-	-	3.96	30.2	133.5	333.5	651	7.92
990	POT127	16/03/2022	-	-	-	-	3.97	27	-2.7	197.3	649	7.49
990	POT127	28/04/2022	-	-	-	-	3.39	27.7	95.4	295.4	639	7.32
990	POT127	1/09/2022	-	-	-	-	2.62	34.4	11.2	211.2	817	7.13
990	POT127	16/11/2022	-	-	-	-	1.1	34.3	117	317	814	7.08
990	POT127	14/12/2022	-	-	-	-	1.26	31.9	90.3	290.3	685	7.22
990	POT127	18/01/2023	-	-	-	-	3.43	29.5	136.6	336.6	588	7.69
990	POT127	15/02/2023	-	-	-	-	3.21	36.8	85	285	460.7	7.97
990	POT127	18/04/2023	-	-	-	-	3.04	29.1	-	-	728	7.05
990	POT127	21/06/2023	-	-	-	-	3.97	30.2	-	-	807	7.32
990	POT127	24/08/2023	-	-	-	-	1.61	32.2	89.3	289.3	694	7.01
990	POT127	13/11/2023	-	-	-	-	2.72	35.9	90.2	290.2	859	7.02
990	POT127	12/12/2023	-	-	-	-	4.87	30.2	128.3	328.3	788	7.01
990	POT127	16/01/2024	-	-	-	-	5.22	26.1	-126.5	73.5	605	7.22
990	POT127	14/02/2024	-	-	-	-	3.48	25.6	-147.6	52.4	601	7.61
990	POT127	13/03/2024	-	-	-	-	3.24	27.8	40.6	240.6	617	7.27
990	POT127	10/04/2024	-	-	-	-	4.26	30.9	122.4	322.4	733	7.09
990	POT128	1/12/2021	-	-	-	-	1.66	33.3	130.1	330.1	680	7.6
990	POT128	11/01/2022	-	-	-	-	1.64	34.4	87.8	287.8	857	7.39
990	POT128	17/02/2022	-	-	-	-	2.45	28.6	111.6	311.6	773	7.41
990	POT128	15/03/2022	-	-	-	-	4.02	31.5	9.1	209.1	940	7.46
990	POT128	28/04/2022	-	-	-	-	2.46	31.7	77.6	277.6	718	7.1
990	POT128	31/08/2022	-	-	-	-	3.42	31.6	100.2	300.2	795	7.03
990	POT128	16/11/2022	-	-	-	-	1.31	31.9	99.9	299.9	803	6.87
990	POT128	14/12/2022	-	-	-	-	1.79	32.1	106.1	306.1	722	6.82
990	POT128	18/01/2023	-	-	-	-	2.3	31.4	102.1	302.1	772	6.92
990	POT128	15/02/2023	-	-	-	-	1.6	37.6	103.9	303.9	905	6.89
990	POT128	19/04/2023	-	-	-	-	2.59	26.4	-	-	805	6.97
990	POT128	23/08/2023	-	-	-	-	3.28	32.8	82.4	282.4	728	6.8
990	POT128	13/11/2023	-	-	-	-	2.01	31.4	60.8	260.8	807	6.9
990	POT128	13/12/2023	-	-	-	-	3.38	30.8	99.8	299.8	748	6.88
990	POT128	15/01/2024	-	-	-	-	1.25	30.7	-118.6	81.4	702	6.86
990	POT128	13/02/2024	-	-	-	-	3.23	30.4	40.2	240.2	858	-
990	POT128	12/03/2024	-	-	-	-	3.22	30.6	65.8	265.8	919	6.94
990	POT128	10/04/2024	-	-	-	-	4.25	30.4	125.8	325.8	756	6.95
990	POT129	11/01/2022	-	-	-	-	1.74	40.4	83.4	283.4	1038	7.68
990	POT129	16/02/2022	-	-	-	-	2.03	33.7	135.7	335.7	801	7.48
990	POT129	15/03/2022	-	-	-	-	2.76	36.2	-39.8	160.2	820	7.38
990	POT129	28/04/2022	-	-	-	-	3.52	29.9	99.5	299.5	682	7.09
990	POT129	31/08/2022	-	-	-	-	3.3	30.6	107.2	307.2	790	7.09
990	POT129	16/11/2022	-	-	-	-	1.86	33.7	92.6	292.6	829	6.95
990	POT129	14/12/2022	-	-	-	-	1.74	38.4	109.2	309.2	799	6.87
990	POT129	15/02/2023	-	-	-	-	2.26	37.4	104.9	304.9	825	6.97
990	POT129	15/02/2023	-	-	-	-	2.26	37.4	56.9	256.9	825	6.97
990	POT129	15/03/2023	-	-	-	-	2.39	28.8	100.6	300.6	745	6.97
990	POT129	19/04/2023	-	-	-	-	0.45	22.7	-	-	641	7.1
990	POT129	22/08/2023	-	-	-	-	2.73	36.7	88.4	288.4	769	6.91
990	POT129	13/11/2023	-	-	-	-	2.78	30.8	83.3	283.3	796	6.94
990	POT129	13/12/2023	-	-	-	-	3.9	33	100.3	300.3	783	7.03
990	POT129	15/01/2024	-	-	-	-	4.62	27.7	-2.8	197.2	672	7.2
990	POT129	13/02/2024	-	-	-	-	3.7	28.3	65.6	265.6	670	-
990	POT129	12/03/2024	-	-	-	-	3	27.6	61.4	261.4	705	7.1
990	POT129	10/04/2024	-	-	-	-	5.55	26.5	119.5	319.5	703	7.13
990	POT130	16/02/2022	-	-	-	-	3.55	28.9	127.1	327.1	715	7.46
990	POT130	9/08/2023	-	-	-	-	5.8	28.8	98.3	298.3	2249	8.2
990	POT130	14/11/2023	-	-	-	-	3.03	28	83.2	283.2	744	7.01
990	POT130	13/12/2023	-	-	-	-	1.83	36.4	113.5	313.5	849	6.91
990	POT130	16/01/2024	-	-	-	-	5.92	29.1	-95.4	104.6	694	7.07
990	POT130	14/02/2024	-	-	-	-	4.71	26.9	-99.2	100.8	700	7.02
990	POT130	13/03/2024	-	-	-	-	4.13	26.7	61.1	261.1	692	7.02
990	POT130	11/04/2024	-	-	-	-	5.29	28.5	115.6	315.6	669	7.41
990	POT131	21/06/2023	-	-	-	-	4.02	30.2	-	-	772	7.38
990	POT131	23/08/2023	-	-	-	-	2.09	37.3	85.8	285.8	721	7.15
990	POT131	13/11/2023	-	-	-	-	3.01	38.7	72.3	272.3	786	7.2
990	POT131	12/12/2023	-	-	-	-	2.8	30.8	91.6	291.6	635	7.44
990	POT131	15/01/2024	-	-	-	-	4.4	28.7	-52.1	147.9	437	7.57
990	POT131	13/02/2024	-	-	-	-	3.96	38.6	58.2	258.2	637	-
990	POT131	12/03/2024	-	-	-	-	3.98	27.9	50	250	-	7.57
990	POT131	10/04/2024	-	-	-	-	3.6	45.9	118.8	318.8	808	7.17
990	POT133	19/04/2023	-	-	-	-	3.33	29.2	-	-	821	6.89
990	POT198	22/08/2023	-	-	-	-	5.09	28.8	89.6	289.6	689	6.84
990	POT198	14/11/2023	-	-	-	-	4.12	32.5	98.2	298.2	835	7.24
990	POT198	12/12/2023	-	-	-	-	2.28	37.8	112.2	312.2	893	6.79
990	POT198	16/01/2024	-	-	-	-	6.74	26.3	149.5	349.5	845	7.81
990	POT198	13/02/2024	-	-	-	-	2.45	27.1	-126.4	73.6	697	-
990	POT198	13/03/2024	-	-	-	-	4.07	29.3	67.8	267.8	718	6.87
990	POT198	11/04/2024	-	-	-	-	5.61	22.5	101.3	301.3	656	6.72
990	POT201	22/08/2023	-	-	-	-	3.75	30.1	76.3	276.3	705	7.11
990	POT201	14/11/2023	-	-	-	-	3.03	30.4	80.1	280.1	796	7.15
990	POT201	12/12/2023	-	-	-	-	3.76	44.6	109.2	309.2	999	7.15
990	POT201	15/01/2024	-	-	-	-	4.87	30.3	5.7	205.7	721	7.15
990	POT201	13/02/2024	-	-	-	-	4.36	29.8	30.3	230.3	692	-
990	POT201	12/03/2024	-	-	-	-	2.39	29.8	76.6	276.6	726	7.02
990	POT201	10/04/2024	-	-	-	-	4.99	23.7	78.9	278.9	659	6.8
990	POT238	10/04/2024	-	-	-	-	5.92	28.1	79.5	279.5	51	8
990	RN022475	11/05/2017	-	-	-	-	0.47	31.1	50.1	250.1	227	8.23
990	RN022475	11/05/2017	-	-	-	-	0.47	31.1	50.1	250.1	227	8.23
990	RN022475	19/07/2017	-	-	-	-	2.5	28.1	108	308	313	7.5
990	RN022475	23/09/2017	-	-	-	-	1.62	30.6	94	294	698	7.49
990	RN022475	24/11/2017	-	-	-	-	1.5	30.3	32	232	779	6.92
990	RN022475	26/01/2018	-	-	-	-	0.62	28.6	72.4	272.4	764	6.79
990	RN024050	12/05/2017	-	-	-	-	1.34	31.1	55.9	255.9	768	7.19
990	RN028900	2/05/2017	-	-	-	-	1.6	30.8	87.1	287.1	-	7
990	RN028900	18/07/2017	-	-	-	-	3.6	33	116.3	316.3	887	6.88
990	RN028900	24/11/2017	-	-	-	-	3.91	30.9	151.4	351.4	849	7.19

Table T1
Current and Historical Groundwater Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T1 - Historical Groundwater Gauging and Water Quality Parameters

AECOM

			Depth to Water	Well Depth	TOC	Water Elevation	DO	Temperature	Redox Potential	Redox Potential Corrected	Electrical Conductivity	pH
990	RN029243	11/05/2017	-	-	-	-	2.73	36.3	115.8	315.8	1013	7.11
990	RN029429	23/07/2017	-	-	-	-	2.32	28.6	57.5	257.5	887	7.2
990	RN029430	24/09/2017	-	-	-	-	1.03	33.6	-54.9	145.1	878	6.89
990	RN029430	24/04/2020	-	-	-	-	1.02	30.7	125.1	325.1	834	6.98
990	RN033342	19/07/2017	-	-	-	-	3.1	33.5	120.1	320.1	943	6.9
990	RN033342	20/04/2020	-	-	-	-	34	32.2	192.4	392.4	830	7.2

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
MW104	25 Sep 2017	0990_MW104_170925	Primary	<0.2	<0.2	1.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	23	59	<0.2	<0.2	<0.2	19	23	150	300	0.6	47	540	33	52	<0.2	<0.2	<0.2	1248.1	840.00
MW104	27 Nov 2017	0990_MW104_171127	Primary	<0.01	<0.01	1.2	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	16	44	<0.01	<0.01	<0.01	15	25	110	210	0.44	31	580	26	38	<0.01	<0.01	<0.01	1,097	790.00
MW104	16 Mar 2018	0990_MW104_180316	Primary	<0.2	<0.2	1.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	31	73	<0.2	<0.2	<0.2	24	58	200	480	0.72	62	1,600	53	78	<0.2	<0.2	<0.2	2,662	2080.00
MW104	10 Apr 2018	0990_MW104A_180410	Primary	<0.01	<0.01	0.07	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.95	<0.01	<0.01	<0.01	0.16	0.37	1.3	8.8	<0.01	0.33	4.2	0.24	0.91	<0.01	<0.01	<0.01	17.48	13.00
MW104	10 Apr 2018	0990_MW104B_180410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	0.69	<0.01	<0.01	<0.01	0.27	0.51	1.8	4	<0.01	0.49	10	0.38	0.66	<0.01	<0.01	<0.01	19.04	14.00
MW104	10 Apr 2018	0990_MW104C_180410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	0.69	<0.01	<0.01	<0.01	0.26	0.52	1.8	4.2	<0.01	0.52	9.5	0.4	0.65	<0.01	<0.01	<0.01	18.78	13.70
MW104	10 Apr 2018	0990_QCMW746_080410	Intra-lab Duplicate	<0.01	<0.01	0.1	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.92	<0.01	<0.01	<0.01	0.16	0.4	1.3	8.2	<0.01	0.35	4.2	0.26	0.9	<0.01	<0.01	<0.01	16.94	12.40
MW104	10 Apr 2018	0990_QCMW747_180410	Inter-lab Duplicate	<0.05	<0.05	0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.2	1.15	<0.02	<0.02	<0.02	0.14	0.35	1.17	8.81	<0.02	0.23	3.1	0.2	1.01	<0.05	<0.02	<0.02	16.4	11.90
MW104	19 Dec 2018	0990_MW104_181219	Primary	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	4.9	11	<2	<2	<2	4.3	7.4	47	66	<2	9.5	220	7.3	8.3	<2	<2	<2	387.7	286.00
MW104	23 Apr 2020	0990_MW104_200423	Primary	<0.05	<0.05	0.08	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.8	2.32	<0.02	<0.02	<0.02	0.86	1.81	5.81	12.6	0.03	2.04	53.5	1.25	2.61	<0.05	<0.02	<0.02	83.7	66.10
MW104	23 Apr 2020	0990_QC104_200423	Intra-lab Duplicate	<0.05	<0.05	0.19	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	1.2	2.97	<0.02	<0.02	<0.02	1.14	2.55	4.92	11.6	0.05	2.68	44.6	1.63	2.86	<0.05	<0.02	<0.02	76.4	56.20
MW104	18 Nov 2020	0990_MW104_11_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.5	1.62	<0.02	<0.02	<0.02	0.5	1.47	2.99	6.67	0.04	1.56	36	0.88	1.12	<0.05	<0.02	<0.02	53.4	42.70
MW104	18 Nov 2020	0990_MW104_15_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.5	1.65	<0.02	<0.02	<0.02	0.51	1.02	2.78	5.29	0.02	1.25	25.2	0.86	1.11	<0.05	<0.02	<0.02	40.2	30.50
MW104	18 Nov 2020	0990_MW104_19_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.5	1.66	<0.02	<0.02	<0.02	0.55	1.06	3.02	4.51	0.03	1.32	21.4	0.88	1.23	<0.05	<0.02	<0.02	36.2	25.90
MW104	21 Apr 2021	0990_MW104_210421	Primary	<0.42	<0.42	4.75	<0.42	<1.04	<0.42	<1.04	<0.42	<1.04	<0.42	<1.04	70.4	192	<0.42	<0.42	<0.42	60.4	119	440	938	1.67	124	2,050	94.9	173	<1.04	<0.42	<0.42	4,270	2990.00
MW104	08 Jun 2021	0990_MW104_210608	Primary	<0.05	<0.05	0.65	0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	10.8	26.4	<0.02	<0.02	<0.02	8.28	17.8	54.8	119	0.25	19.6	322	14.1	24.8	<0.05	<0.02	<0.02	618	441.00
MW104	08 Jun 2021	0990_QC100_210608	Intra-lab Duplicate	<0.05	<0.05	0.64	0.06	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	10.4	27.6	<0.02	<0.02	<0.02	8.01	18.9	57.8	124	0.26	20.4	338	14.2	25.9	<0.05	<0.02	<0.02	646	462.00
MW104	08 Jun 2021	0990_QC200_210608	Inter-lab Duplicate	<0.01	<0.01	0.7	0.044	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	9.3	22	<0.01	<0.01	<0.01	6.4	8.9	44	96	0.23	13	250	11	16	<0.02	<0.02	<0.01	-	346.00
MW104	09 Oct 2021	0990_MW104_211009	Primary	<0.05	<0.05	0.06	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.9	2.34	<0.02	<0.02	<0.02	0.78	1.78	5.24	11.7	0.03	1.74	43.8	1.24	2.32	<0.05	<0.02	<0.02	71.9	55.50
MW104	21 Oct 2022	0990_MW104_221021	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.3	0.42	<0.02	<0.02	<0.02	0.14	0.27	0.99	2.39	<0.02	0.3	6.45	0.24	0.41	<0.05	<0.02	<0.02	11.9	8.84
MW104	21 Oct 2022	0990_QC103_221021	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.2	0.42	<0.02	<0.02	<0.02	0.13	0.15	0.96	2.29	<0.02	0.29	6.43	0.23	0.4	<0.05	<0.02	<0.02	11.5	8.72
MW104	21 Oct 2022	0990_QC203_221021	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.18	0.31	<0.01	<0.01	<0.01	0.079	0.15	0.59	1.5	<0.01	0.18	3.7	0.15	0.25	<0.02	<0.02	<0.01	-	5.20
MW104	25 Sep 2023	0990_QC200_230925	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	0.38	0.43	<0.01	<0.01	<0.01	0.11	0.17	0.76	1.2	<0.01	0.21	2.1	0.22	0.28	<0.02	<0.02	<0.01	-	3.30
MW104	25 Sep 2023	0990_QC100_230925	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	0.3	0.36	<0.02	<0.02	<0.02	0.1	0.19	0.85	1.7	<0.02	0.22	3.11	0.21	0.27	<0.05	<0.02	<0.02	7.31	4.81
MW104	25 Sep 2023	0990_MW104_230925	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	0.2	0.39	<0.02	<0.02	<0.02	0.1	0.2	0.82	1.78	<0.02	0.24	3.74	0.21	0.28	<0.05	<0.02	<0.02	7.96	5.52
MW106	13 Sep 2017	0990_MW106A_170913	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.04	0.11	0.44	<0.01	0.04	0.73	0.02	0.05	<0.01	<0.01	<0.01	1.52	1.17
MW106	13 Sep 2017	0990_MW106B_170913	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.05	0.11	0.42	<0.01	0.04	0.84	0.02	0.06	<0.01	<0.01	<0.01	1.63	1.26
MW106	13 Sep 2017	0990_MW106C_170913	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.04	0.11	0.45	<0.01	0.03	0.83	0.02	0.05	<0.01	<0.01	<0.01	1.62	1.28
MW106	13 Sep 2017	0990_MW106D_170913	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.05	0.11	0.43	<0.01	0.03	0.79	0.02	0.06	<0.01	<0.01	<0.01	1.58	1.22
MW106	24 Sep 2017	0990_MW106_170924	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.09	0.15	0.42	<0.01	0.05	1.3	0.02	0.1	<0.01	<0.01	<0.01	2.22	1.72
MW106	26 Nov 2017	0990_MW106_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.03	0.13	0.39	<0.01	0.04	0.86	0.03	0.05	<0.01	<0.01	<0.01	1.62	1.25
MW106	19 Mar 2018	0990_M106_180319	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.01	0.05	0.1	0.35	<0.01	0.03	0.94	0.02	0.09	<0.01	<0.01	<0.01	1.66	1.29
MW106	18 Nov 2020	0990_MW106_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	<0.02	0.03	0.1	0.32	<0.02	0.03	0.77	<0.02	0.04	<0.05	<0.02	<0.02	1.35	1.09
MW106	18 Nov 2020	0990_QC204_201118	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.11	0.048	<0.01	<0.01	<0.01	<0.01	0.02	0.088	0.27	<0.01	0.024	0.5	<0.02	0.04	<0.02	<0.02	<0.01	-	0.77
MW107	24 Sep 2017	0990_MW107_170924	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	0.02	0.05	0.1	0.36	<0.01	0.04	1.2	0.03	0.08	<0.01	<0.01	<0.01	1.93	1.56
MW107	26 Nov 2017	0990_MW107_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.05	<0.01	<0.01	<0.01	0.02	0.03	0.08	0.36	<0.01	0.04	1.2	0.04	0.04	<0.01	<0.01	<0.01	1.91	1.56
MW107	19 Mar 2018	0990_M107_180319	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.01	<0.01	<0.01	0.02	0.05	0.09	0.41	<0.01	0.04	1.6	0.03	0.08	<0.01	<0.01	<0.01	2.38	2.01
MW107	18 Jan 2019	0990_MW107_190118	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	0.01	0.03	0.15	<0.01	0.02	0.36	0.01	0.02	<0.01	<0.01	<0.01	0.62	0.51
MW107	23 Apr 2020	0990_MW107_200423	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	0.02	0.05	0.34	<0.02	0.03	0.81	0.02	0.04	<0.05	<0.02	<0.02	1.35	1.15
MW107	23 Apr 2020	0990_QC103_200423	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.02	<0.02	<0.02	<0.02	0.03	0.05	0.32	<0.02	0.03	0.79	0.02	0.04	<0.05	<0.02	<0.02	1.33	1.11
MW107	23 Apr 2020	0990_QC203_200423	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.054	0.034	<0.01	<0.01	<0.01	0.01	0.015	0.042	0.28	<0.01	0.022	0.76	0.021	0.03	<0.02	<0.02	<0.01	-	1.04
MW107	18 Nov 2020	0990_MW107_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.22	<0.02	0.02	0.73	<0.02	0.02	<0.05	<0.02	<0.02	1.05	0.95
MW107	18 Nov 2020	0990_QC103_201118	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.21	<0.02	0.02	0.76	<0.02	0.02	<0.05	<0.02	<0.02	1.07	0.97
MW107	18 Nov 2020	0990_QC203_201118	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.025	<0.01	<0.01	<0.01	<0.01	0.011	0.028	0.2	<0.01	0.017	0.57	<0.02	0.021	<0.02	<0.02	<0.01	-	0.77
MW107	20 Apr 2021	0990_MW107_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	0.02	0.04	0.13	0.39	<0.02	0.05	0.95	0.03	0.04	<0.05	<0.02	<0.02	1.69	1.34
MW107	09 Oct 2021	0990_MW107_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.23	<0.02	0.02	0.49	<0.02	0.03	<0.05	<0.02	<0.02	0.85	0.72
MW107	09 Oct 2021	0990_QC102_211009	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.22	<0.02	0.02	0.54	<0.02	0.03	<0.05	<0.02	<0.02	0.89	0.76
MW107	09 Oct 2021	0990_QC202_211009	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.051	0.032	<0.01	<0.01	<0.01	<0.01	0.013	0.037	0.23	<0.01	0.021	0.51	<0.02	0.025	<0.02	<0.02	<0.01	-	0.74
MW107	24 Oct 2022	0990_MW107_2210	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.26	<0.02	0.02	0.57	<0.02	0.03	<0.05	<0.02	<0.02	0.96	0.83
MW107	24 Oct 2022	0990-QC208_221024	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.071	0.025	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	0.2	<0.01	0.015	0.36	<0.02	0.021	<0.02	<0.02	<0.01	-	0.56
MW107	27 Sep 2023	0990_QC201_230927	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.05	<0.05	<0.01	0.072	0.039	<0.01	<0.01	<0.01	<0.01	0.013	0.036	0.34	<0.01	0.013	0.65	<0.02	0.031	<0.02	<0.02	<0.01	-	-
MW107	27 Sep 2023	0990_MW107_230927	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.23	<0.02	0.02	0.58	<0.02	0.02	<0.05	<0.02	<0.02	0.91	0.81
MW107	27 Sep 2023	0990_QC101_230927	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.25	<0.02	0.02	0.57	<0.02	0.02	<0.05	<0.02	<0.02	0.93	0.82
MW110	11 Sep 2017	0990_MW110A_170912	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.31	<0.01	<0.01	<0.01	0.06	0.17	0.46	2	<0.01	0.16	6.3	0.1	0.26	<0.01	<0.01	<0.01	9.89	8.30
MW110	11 Sep 2017	0990_MW110B_170912	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.31	<0.01	<0.01	<0.01	0.06	0.15	0.47	2	<0.01	0.15	5.2	0.1	0.25	<0.01	<0.01	<0.01	8.76	7.20
MW110	11 Sep 2017	0990_MW110C_170912	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.32	<0.01	<0.01	<0.01	0.06	0.13	0.46	1.9	<0.01	0.13	4.3	0.1	0.27	<0.01	<0.01	<0.01	7.74	6.20
MW110	24 Sep 2017	0990_MW110_170924	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.28	<0.01	<0.01	<0.01	0.07	0.24	0.56	2.1	<0.01	0.2	6.9	0.09	0.38	<0.01	<0.01	<0.01	10.89	9.00

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
MW110	26 Nov 2017	0990_MW110_171126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.26	<0.01	<0.01	<0.01	0.06	0.14	0.42	1.8	<0.01	0.14	4.6	0.09	0.23	<0.01	<0.01	<0.01	7.84	6.40
MW110	19 Mar 2018	0990_M110_180319	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	<0.01	<0.01	<0.01	0.04	0.13	0.27	1.2	<0.01	0.1	3.9	0.06	0.24	<0.01	<0.01	<0.01	6.13	5.10
MW110	10 Apr 2018	0990_MW110A_180410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.24	<0.01	<0.01	<0.01	0.07	0.16	0.48	2	<0.01	0.17	5	0.11	0.25	<0.01	<0.01	<0.01	8.54	7.00
MW110	10 Apr 2018	0990_MW110B_180410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.24	<0.01	<0.01	<0.01	0.07	0.17	0.49	2	<0.01	0.17	5.3	0.12	0.25	<0.01	<0.01	<0.01	8.88	7.30
MW110	10 Apr 2018	0990_MW110C_180410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.23	<0.01	<0.01	<0.01	0.07	0.16	0.48	1.9	<0.01	0.17	5.3	0.11	0.24	<0.01	<0.01	<0.01	8.72	7.20
MW110	04 Mar 2019	0990_MW110_190304	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	<0.01	<0.01	<0.01	0.04	0.16	0.33	1.5	<0.01	0.1	3.5	0.06	0.26	<0.01	<0.01	<0.01	6.23	5.00
MW110	19 Nov 2020	0990_MW110_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.2	<0.02	<0.02	<0.02	0.04	0.11	0.31	1.34	<0.02	0.11	2.46	0.07	0.17	<0.05	<0.02	<0.02	4.81	3.80
MW110	20 Apr 2021	0990_MW110_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.17	<0.02	<0.02	<0.02	0.04	0.11	0.33	1.33	<0.02	0.1	2.56	0.07	0.17	<0.05	<0.02	<0.02	4.88	3.89
MW110	09 Oct 2021	0990_MW110_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.22	<0.02	<0.02	<0.02	0.04	0.12	0.32	1.41	<0.02	0.11	3.33	0.07	0.2	<0.05	<0.02	<0.02	5.82	4.74
MW110	24 Oct 2022	0990_MW110_221024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.23	<0.02	<0.02	<0.02	0.06	0.14	0.4	1.85	<0.02	0.14	3.94	0.09	0.25	<0.05	<0.02	<0.02	7.1	5.79
MW110	24 Oct 2022	0990-QC202_221024	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.07	0.17	<0.01	<0.01	<0.01	0.032	0.071	0.26	1.2	<0.01	0.086	2.1	0.055	0.16	<0.02	<0.02	<0.01	-	3.30
MW110	27 Sep 2023	0990_QC202_230927	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	0.086	0.26	<0.01	<0.01	<0.01	0.051	0.1	0.38	1.1	<0.01	0.11	2.1	0.09	0.22	<0.02	<0.02	<0.01	-	-
MW110	27 Sep 2023	0990_MW110_230927	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.24	<0.02	<0.02	<0.02	0.06	0.13	0.42	1.68	<0.02	0.14	2.98	0.09	0.21	<0.05	<0.02	<0.02	5.95	4.66
MW110	27 Sep 2023	0990_QC102_230927	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.21	<0.02	<0.02	<0.02	0.05	0.13	0.37	1.59	<0.02	0.14	3.41	0.08	0.19	<0.05	<0.02	<0.02	6.17	5
MW111	23 Sep 2017	0990_MW111_170923	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.27	<0.01	<0.01	<0.01	0.05	0.17	0.43	2.5	<0.01	0.13	3.6	0.08	0.31	<0.01	<0.01	<0.01	7.61	6.10
MW111	23 Sep 2017	0990_QCMW277_170923	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.34	<0.02	<0.02	<0.02	0.07	0.15	0.43	2.58	<0.02	0.14	3.05	0.09	0.4	<0.05	<0.02	<0.02	7.25	5.63
MW111	26 Nov 2017	0990_MW111_171126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.18	<0.01	<0.01	<0.01	0.05	0.1	0.3	1.3	<0.01	0.1	3.9	0.07	0.18	<0.01	<0.01	<0.01	6.26	5.20
MW111	26 Nov 2017	0990_QCMW443_171126	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.16	<0.02	<0.02	<0.02	0.04	0.14	0.15	1.38	<0.02	0.1	3.48	<0.02	0.18	<0.05	<0.02	<0.02	5.63	4.86
MW111	19 Mar 2018	0990_M111_180319	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.2	<0.01	<0.01	<0.01	0.05	0.15	0.3	1.6	<0.01	0.11	4.1	0.07	0.29	<0.01	<0.01	<0.01	6.92	5.70
MW117	09 Sep 2017	0990_MW117A_170909	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.01	<0.01	<0.01	0.02	0.04	0.12	0.79	<0.01	0.04	1.3	0.04	0.12	<0.01	<0.01	<0.01	2.58	2.09
MW117	09 Sep 2017	0990_MW117B_170909	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.01	<0.01	<0.01	0.02	0.04	0.13	0.82	<0.01	0.05	1.4	0.04	0.13	<0.01	<0.01	<0.01	2.74	2.22
MW117	09 Sep 2017	0990_MW117C_170909	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.01	<0.01	<0.01	0.02	0.04	0.12	0.78	<0.01	0.05	1.2	0.04	0.13	<0.01	<0.01	<0.01	2.49	1.98
MW117	11 Sep 2017	0990_QCPB227A_170911	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	0.37	<0.02	<0.01	0.28	<0.02	0.07	<0.05	<0.02	<0.02	0.88	0.65
MW117	23 Sep 2017	0990_MW117_170923	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	<0.01	<0.01	<0.01	0.02	0.04	0.16	0.58	<0.01	0.03	1.3	0.04	0.12	<0.01	<0.01	<0.01	2.44	1.88
MW117	02 Nov 2017	0990_MW117_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.01	<0.01	<0.01	0.02	0.06	0.13	0.81	<0.01	0.06	1.6	0.03	0.12	<0.01	<0.01	<0.01	2.93	2.41
MW117	26 Nov 2017	0990_MW117_171126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.01	<0.01	<0.01	0.02	0.04	0.14	0.75	<0.01	0.04	1.4	0.03	0.11	<0.01	<0.01	<0.01	2.64	2.15
MW117	11 Apr 2018	0990_MW117A_180411	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.01	0.04	0.09	0.62	<0.01	0.03	0.92	0.02	0.08	<0.01	<0.01	<0.01	1.88	1.54
MW117	11 Apr 2018	0990_MW117B_180411	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.05	0.1	0.71	<0.01	0.03	1	0.02	0.09	<0.01	<0.01	<0.01	2.09	1.71
MW117	11 Apr 2018	0990_MW117C_180411	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.05	0.1	0.73	<0.01	0.03	1.1	0.02	0.09	<0.01	<0.01	<0.01	2.21	1.83
MW117	20 Apr 2021	0990_MW117_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.18	<0.02	<0.02	<0.02	0.02	0.06	0.23	0.98	<0.02	0.05	1.12	0.04	0.08	<0.05	<0.02	<0.02	2.76	2.10
MW118	23 Sep 2017	0990_MW118_170923	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.01	<0.01	<0.01	0.01	0.04	0.15	0.54	<0.01	0.03	1.5	0.04	0.11	<0.01	<0.01	<0.01	2.56	2.04
MW118	02 Nov 2017	0990_MW118_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.01	<0.01	<0.01	0.02	0.05	0.11	0.66	<0.01	0.04	1.5	0.02	0.15	<0.01	<0.01	<0.01	2.65	2.16
MW118	26 Nov 2017	0990_MW118_171126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.01	<0.01	<0.01	0.01	0.04	0.11	0.65	<0.01	0.03	1.4	0.02	0.11	<0.01	<0.01	<0.01	2.47	2.05
MW118	23 Apr 2020	0990_MW118_200423	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.13	<0.02	<0.02	<0.02	0.04	0.05	0.21	0.9	<0.02	0.07	0.74	0.04	0.12	<0.05	<0.02	<0.02	2.3	1.64
MW118	09 Oct 2021	0990_MW118_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.14	<0.02	<0.02	<0.02	0.02	0.06	0.18	0.92	<0.02	0.05	1.14	0.03	0.14	<0.05	<0.02	<0.02	2.68	2.06
MW118	27 Sep 2023	0990_QC203_230927	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	0.065	0.18	<0.01	<0.01	<0.01	0.027	0.061	0.23	1.3	<0.01	0.066	2	0.047	0.16	<0.02	<0.02	<0.01	4.136	2.23
MW118	27 Sep 2023	0990_MW118_230927	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.16	<0.02	<0.02	<0.02	0.03	0.09	0.24	1.18	<0.02	0.08	1.87	0.05	0.16	<0.05	<0.02	<0.02	3.86	3.05
MW118	27 Sep 2023	0990_QC103_230927	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.14	<0.02	<0.02	<0.02	0.03	0.07	0.21	1	<0.02	0.07	1.6	0.04	0.13	<0.05	<0.02	<0.02	3.29	2.6
MW127	07 Sep 2017	0990_MW127_170907	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.12	<0.01	<0.01	<0.01	0.05	0.09	0.27	1	<0.01	0.11	5.6	0.07	0.11	<0.01	<0.01	<0.01	7.47	6.60
MW127	26 Nov 2017	0990_MW127_171126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.09	<0.01	<0.01	<0.01	0.03	0.05	0.14	0.8	<0.01	0.06	2.7	0.05	0.09	<0.01	<0.01	<0.01	4.08	3.50
MW127	27 Jan 2018	0990_MW127_180127	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.22	<0.01	<0.01	<0.01	0.03	0.09	0.23	2.1	<0.01	0.06	1.7	0.06	0.21	<0.01	<0.01	<0.01	4.77	3.80
MW127	17 May 2018	0990_MW127_180517	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.12	<0.01	<0.01	<0.01	0.05	0.06	0.27	0.93	<0.01	0.10	5.1	0.08	0.12	<0.01	<0.01	<0.01	6.89	6.03
MW127	18 Dec 2018	0990_MW127_181218	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.32	0.41	<0.01	<0.01	<0.01	0.16	0.34	1.4	3	0.01	0.30	5.8	0.31	0.42	<0.01	<0.01	<0.01	12.47	8.80
MW127	18 Dec 2018	0990_QCMW875_181218	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.3	0.49	<0.01	<0.01	0.01	0.15	0.28	1.7	3.2	0.01	0.28	5.6	0.34	0.41	<0.01	<0.01	<0.01	12.77	8.80
MW127	18 Dec 2018	0990_QCMW876_181218	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.48	<0.02	<0.02	<0.02	0.13	0.14	0.69	3.04	<0.02	0.23	4	0.24	0.31	<0.05	<0.02	<0.02	9.26	7.04
MW127	23 Apr 2020	0990_MW127_200423	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	0.02	0.04	0.14	0.43	<0.02	0.05	1.1	0.04	0.06	<0.05	<0.02	<0.02	1.94	1.53
MW127	19 Apr 2021	0990_MW127_210419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.1	0.24	<0.02	<0.02	<0.02	0.14	0.18	0.75	2.31	<0.02	0.25	6.1	0.23	0.26	<0.05	<0.02	<0.02	10.6	8.41
MW127	09 Oct 2021	0990_MW127_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.09	<0.02	<0.02	<0.02	0.04	0.05	0.24	0.72	<0.02	0.08	1.79	0.06	0.09	<0.05	<0.02	<0.02	3.16	2.51
MW127	09 Oct 2021	0990_QC101_211009	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.09	<0.02	<0.02	<0.02	0.03	0.05	0.21	0.72	<0.02	0.07	1.74	0.06	0.09	<0.05	<0.02	<0.02	3.06	2.46
MW127	09 Oct 2021	0990_QC201_211009	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.052	0.092	<0.01	<0.01	<0.01	0.028	0.041	0.17	0.76	<0.01	0.06	1.9	0.061	0.077	<0.02	<0.02	<0.01	-	2.66
MW127	20 Oct 2022	0990_MW127_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.12	<0.02	<0.02	<0.02	0.04	0.06	0.23	0.86	<0.02	0.08	1.91	0.08	0.12	<0.05	<0.02	<0.02	3.5	2.77
MW127	26 Sep 2023	0990_MW127_230926	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.13	<0.02	<0.02	<0.02	0.04	0.07	0.28	1	<0.02	0.09	2.71	0.08	0.12	<0.05	<0.02	<0.02	4.52	3.71
MW128	18 Nov 2020	0990_MW128_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.11	<0.02	<0.02	<0.02	0.04	0.05	0.2	0.51	<0.02	0.09	2.36	0.07	0.08	<0.05	<0.02	<0.02	3.51	2.87
MW129	26 Nov 2017	0990_MW129_171126	Primary	<0.01	<0.01	0.42	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	11	26	<0.01	<0.01	<0.01	14	12	69	100	<0.01	18.00	220	17	20	<0.01	<0.01	<0.01	507.42	320.00
MW129	26 Jan 2018	0990_MW129_180126	Primary	<0.2	<0.2	0.27	0.37	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5.7	11	<0.2	<0.2	<0.2	6.2	6.7	32	60	<0.2	9.70	110	8.5	9.8	<0.2	<0.2	<0.2	260.24	170.00
MW129	26 Jan 2018	0990_QCMW535_180126	Intra-lab Duplicate	<0.01	<0.01	0.34	0.24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	7.6	18	<0.01	<0.01	<0.01	8.8	9	45	79	<0.01	13.00	230	11	14	<0.01	<0.01	<0.01	435.98	309.00
MW129	26 Jan 2018	0990_QCMW536_180126	Inter-lab Duplicate	<0.05	<0.05	0.34	0.25	<0.05	<0.02	<0.05	0.04	<0.05	<0.02	<0.05	3.8	16.1	0.02	<0.02	<0.02	8.21	10.1	39	75.6	0.11	11.80	157	10.7	13	<0.05	<0.02	0.02	346	233.00

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
MW129	16 Mar 2018	0990_MW129_180316	Primary	<0.2	<0.2	0.48	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	9.1	20	<0.2	<0.2	<0.2	11	14	58	120	<0.2	17.00	200	20	20	<0.2	<0.2	<0.2	489.58	320.00
MW129	16 Mar 2018	0990_QCMW655_180316	Intra-lab Duplicate	<0.2	<0.2	0.51	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	9.5	19	<0.2	<0.2	<0.2	12	14	60	110	<0.2	19.00	220	22	19	<0.2	<0.2	<0.2	505.01	330.00
MW129	16 Mar 2018	0990_QCMW656_180316	Inter-lab Duplicate	<0.05	<0.05	0.58	0.18	<0.05	<0.02	<0.05	0.07	<0.05	<0.02	<0.05	19.3	21.4	0.02	<0.02	<0.02	12.1	11.4	41.5	92.9	0.14	16.10	184	15.8	16.7	<0.05	<0.02	<0.02	432	277.00
MW129	18 Dec 2018	0990_MW129_181218	Primary	<0.01	0.02	0.99	0.12	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	18	38	0.03	<0.01	<0.01	23	45	110	150	0.28	30.00	230	31	34	<0.01	<0.01	<0.01	710.51	380.00
MW129	23 Apr 2020	0990_MW129_200423	Primary	<0.05	<0.05	0.12	<0.05	<0.05	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	1.9	6.19	<0.02	<0.02	<0.02	2.41	2.72	11	26.7	0.03	3.52	50.8	3.43	5.63	<0.05	<0.02	<0.02	114	77.50
MW129	19 Apr 2021	0990_MW129_210419	Primary	<0.05	<0.05	0.06	<0.05	<0.05	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	1.4	3.88	<0.02	<0.02	<0.02	1.55	2.73	8.56	21.5	0.02	1.95	32.2	2.41	3.6	<0.05	<0.02	<0.02	79.9	53.70
MW129	09 Oct 2021	0990_MW129_211009	Primary	<0.05	<0.05	0.22	<0.05	<0.05	<0.02	<0.05	0.04	<0.05	<0.02	<0.05	3.2	9.33	<0.02	<0.02	0.04	3.84	5.18	20.4	43.5	0.06	6.41	103	6.56	8.51	<0.05	<0.02	<0.02	210	146.00
MW129	20 Oct 2022	0990_MW129_221020	Primary	<0.05	<0.05	0.62	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	9.7	18.2	<0.02	<0.02	0.02	11.6	8.96	52	86.5	0.08	11.70	129	15.4	15	<0.05	<0.02	<0.02	359	216.00
MW129	26 Sep 2023	0990_MW129_230926	Primary	<0.05	<0.05	0.28	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	2.9	6.58	<0.05	<0.05	<0.05	3.39	3.96	16.6	35.6	0.06	5.37	88	5.52	6.34	<0.12	<0.05	<0.05	175	124
MW132	21 Sep 2017	0990_MW132_170921	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.02	<0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	0.11	0.04
MW132	02 Nov 2017	0990_MW132_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW132	27 Nov 2017	0990_MW132_171127	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW132	20 Jan 2018	0990_MW132_180120	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW132	21 Mar 2018	0990_MW132_180321	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW132	24 Apr 2020	0990_MW132_200424	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW132	20 Nov 2020	0990_MW132_201120	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW132	20 Nov 2020	0990_QC106_201120	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW132	20 Nov 2020	0990_QC206_201120	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
MW132	09 Oct 2021	0990_MW132_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW132	21 Oct 2022	0990_MW132_221921	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
MW132	26 Sep 2023	0990_MW132_230926	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
MW133	22 Sep 2017	0990_MW133_170923	Primary	<0.01	<0.01	<0.05	<0.01	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.18	<0.01
MW133	02 Nov 2017	0990_MW133_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW133	27 Nov 2017	0990_MW133_171127	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW133	20 Jan 2018	0990_MW133_180120	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.02
MW133	21 Mar 2018	0990_MW133_180321	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW133	19 Dec 2018	0990_MW133_181219	Primary	<0.01	<0.01	0.09	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	0.36	0.25
MW133	14 Feb 2019	MW133_190214	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW133	21 Apr 2021	0990_MW133_210421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
MW134	20 Sep 2017	0990_MW134_170920	Primary	<0.001	<0.001	0.007	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.022	0.076	<0.001	<0.001	0.007	0.018	0.045	0.12	0.87	<0.001	0.03	1	0.033	0.1	<0.001	<0.001	<0.001	2.325	1.87
MW134	24 Nov 2017	0990_MW134_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.01	<0.01	<0.01	0.01	0.04	0.11	0.7	<0.01	0.03	1.3	0.02	0.14	<0.01	<0.01	<0.01	2.45	2.00
MW134	02 Feb 2018	0990_MW134_180202	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.05	0.11	0.67	<0.01	0.03	0.71	0.02	0.1	<0.01	<0.01	<0.01	1.78	1.38
MW134	28 Mar 2018	0990_MW134_180328	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	<0.01	0.02	0.05	0.41	<0.01	0.02	0.79	0.01	0.09	<0.01	<0.01	<0.01	1.44	1.20
MW134	10 Apr 2018	0990_MW134A_180410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	<0.01	0.02	0.05	0.28	<0.01	0.02	0.58	0.02	0.04	<0.01	<0.01	<0.01	1.05	0.86
MW134	10 Apr 2018	0990_MW134B_180410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.01	0.04	0.09	0.67	<0.01	0.03	1.1	0.02	0.09	<0.01	<0.01	<0.01	2.12	1.77
MW134	10 Apr 2018	0990_MW134C_180410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.01	0.04	0.1	0.66	<0.01	0.03	1.1	0.02	0.09	<0.01	<0.01	<0.01	2.12	1.76
MW134	17 Jan 2019	0990_MW134_190117	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.01	<0.01	<0.01	0.02	0.04	0.11	0.74	<0.01	0.04	1.2	0.03	0.14	<0.01	<0.01	<0.01	2.42	1.94
MW134	22 Apr 2021	0990_MW134_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.19	<0.02	<0.02	<0.02	0.03	0.08	0.22	1.55	<0.02	0.06	1.45	0.04	0.23	<0.05	<0.02	<0.02	3.85	3.00
MW135	22 Sep 2017	0990_MW135_170922	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
MW135	22 Sep 2017	0990_QCMW269_170922	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
MW135	02 Nov 2017	0990_MW135_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW135	24 Nov 2017	0990_MW135_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW135	02 Feb 2018	0990_MW135_180202	Primary	0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW135	02 Feb 2018	0990_QCMW562_180202	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW135	02 Feb 2018	0990_QCMW563_180202	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.06	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.15	0.07
MW135	26 Mar 2018	0990_MW135_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
MW135	17 Jan 2019	0990_MW135_190117	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
MW135	21 Apr 2021	0990_MW135_210421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.12	<0.02	0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.29	0.22
MW135	09 Oct 2021	0990_MW135_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
MW135	25 Sep 2023	0990_MW135_230925	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.11
MW136	22 Sep 2017	0990_MW136_170922	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW136	02 Nov 2017	0990_MW136_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW136	02 Nov 2017	0990_QC393MW_171102	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW136	24 Nov 2017	0990_MW136_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW136	24 Nov 2017	0990_QCMW434_171124	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW136	20 Jan 2018	0990_MW136_180120	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW136	26 Mar 2018	0990_MW136_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																											
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
MW137	15 Sep 2017	0990_MW137A_170915	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.13	<0.01	<0.01	0.19	<0.01	0.02	<0.01	<0.01	<0.01	0.38	0.32
MW137	15 Sep 2017	0990_MW137B_170915	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.13	<0.01	<0.01	0.19	<0.01	0.03	<0.01	<0.01	<0.01	0.39	0.32
MW137	15 Sep 2017	0990_MW137C_170915	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.13	<0.01	<0.01	0.22	<0.01	0.03	<0.01	<0.01	<0.01	0.42	0.35
MW137	15 Sep 2017	0990_QCGW248_170915	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.12	<0.01	<0.01	0.19	<0.01	0.03	<0.01	<0.01	<0.01	0.38	0.31
MW137	15 Sep 2017	0990_QCGW249_170915	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.14	<0.02	<0.01	0.14	<0.02	<0.02	<0.05	<0.02	<0.02	0.28	0.28
MW137	22 Sep 2017	0990_MW137_170922	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	0.1	<0.01	0.01	0.17	0.02	0.02	<0.01	<0.01	<0.01	0.4	0.27
MW137	02 Nov 2017	0990_MW137_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.12	<0.01	<0.01	0.23	<0.01	0.03	<0.01	<0.01	<0.01	0.42	0.35
MW137	24 Nov 2017	0990_MW137_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.11	<0.01	<0.01	0.2	<0.01	0.03	<0.01	<0.01	<0.01	0.37	0.31
MW137	19 Jan 2018	0990_MW137_180119	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.13	<0.01	<0.01	0.16	<0.01	0.02	<0.01	<0.01	<0.01	0.35	0.29
MW137	26 Mar 2018	0990_MW137_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.12	<0.01	<0.01	0.2	<0.01	0.03	<0.01	<0.01	<0.01	0.39	0.32
MW137	18 Jan 2019	0990_MW137_190118	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.09	<0.01	<0.01	0.1	<0.01	0.01	<0.01	<0.01	<0.01	0.23	0.19
MW137	20 Apr 2020	0990_MW137_200420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.22	<0.02	<0.01	0.26	<0.02	0.02	<0.05	<0.02	<0.02	0.56	0.48
MW137	20 Apr 2021	0990_MW137_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.19	<0.02	0.01	0.22	<0.02	0.03	<0.05	<0.02	<0.02	0.51	0.41
MW137	10 Oct 2021	0990_MW137_211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.14	<0.02	<0.01	0.16	<0.02	0.02	<0.05	<0.02	<0.02	0.35	0.30	
MW137	20 Oct 2022	0990_MW137_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.23	<0.02	0.01	0.29	<0.02	0.04	<0.05	<0.02	<0.02	0.66	0.52
MW137	25 Sep 2023	0990_MW137_230925	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.15	<0.02	<0.01	0.19	<0.02	0.03	<0.05	<0.02	<0.02	0.4	0.34	
MW138	22 Sep 2017	0990_MW138_170922	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	<0.01	0.02	0.05	0.39	<0.01	0.02	1.4	0.01	0.05	<0.01	<0.01	<0.01	1.98	1.79
MW138	02 Nov 2017	0990_MW138_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	<0.01	0.02	0.04	0.37	<0.01	0.02	1.5	<0.01	0.06	<0.01	<0.01	<0.01	2.06	1.87
MW138	24 Nov 2017	0990_MW138_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	<0.01	0.02	0.04	0.36	<0.01	0.02	1.4	<0.01	0.06	<0.01	<0.01	<0.01	1.95	1.76
MW138	24 Nov 2017	0990_QCMW435_171124	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.26	<0.02	<0.01	1.16	<0.02	0.04	<0.05	<0.02	<0.02	1.55	1.42
MW138	19 Jan 2018	0990_MW138_180119	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	0.01	0.02	0.05	0.39	<0.01	0.02	1.4	0.02	0.05	<0.01	<0.01	<0.01	2	1.79
MW138	19 Jan 2018	0990_QCMW514_180119	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	0.01	0.02	0.05	0.38	<0.01	0.02	1.4	0.02	0.05	<0.01	<0.01	<0.01	1.99	1.78
MW138	19 Jan 2018	0990_QCMW515_180119	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.3	<0.02	0.01	0.94	<0.02	0.04	<0.05	<0.02	<0.02	1.37	1.24
MW138	26 Mar 2018	0990_MW138_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.01	<0.01	<0.01	<0.01	0.02	0.06	0.49	<0.01	0.02	0.95	0.01	0.1	<0.01	<0.01	<0.01	1.73	1.44
MW138	26 Mar 2018	0990_QCMW719_180326	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.12	<0.02	<0.02	<0.02	<0.02	0.02	0.04	0.32	<0.02	0.02	0.85	0.02	0.06	<0.05	<0.02	<0.02	1.45	1.17
MW138	18 Jan 2019	0990_MW138_190118	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.01	<0.01	<0.01	<0.01	0.02	0.05	0.43	<0.01	0.02	1	0.01	0.07	<0.01	<0.01	<0.01	1.66	1.43
MW138	20 Apr 2021	0990_MW138_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.13	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.08	1.2	<0.02	0.03	2.09	<0.02	0.09	<0.05	<0.02	<0.02	3.68	3.29
MW139	17 Sep 2017	0990_MW139A_170917	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.01	<0.01	<0.01	0.01	0.06	0.07	0.59	<0.01	0.02	0.89	0.02	0.13	<0.01	<0.01	<0.01	1.85	1.48
MW140	29 Sep 2017	0990_MW140_170929	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
MW140	24 Nov 2017	0990_MW140_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.02
MW140	19 Jan 2018	0990_MW140_180119	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.08	<0.01	<0.01	0.07	<0.01	0.01	<0.01	<0.01	<0.01	0.18	0.15
MW140	26 Mar 2018	0990_MW140_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
MW140	26 Mar 2018	0990_QCMW718_180326	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
MW140	19 Dec 2018	0990_MW140_181219	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<0.01	<0.01	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	0.21	0.18
MW140	20 Apr 2020	0990_MW140_200420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.02	<0.02	<0.02	<0.02	0.02	0.05	0.4	<0.02	0.02	0.51	<0.02	0.05	<0.05	<0.02	<0.02	1.1	0.91
MW140	20 Apr 2021	0990_MW140_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.2	0.20
MW140	10 Oct 2021	0990_MW140_211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.12	0.12
MW140	20 Oct 2022	0990_MW140_2210	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.06	0.44	<0.02	0.02	0.53	<0.02	0.08	<0.05	<0.02	<0.02	1.21	0.97
MW140	25 Sep 2023	0990_MW140_230922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	<0.01	0.15	<0.02	<0.02	<0.05	<0.02	<0.02	0.23	0.23
MW141	22 Sep 2017	0990_MW141_170922	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02	<0.01	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	0.1	0.04
MW141	02 Nov 2017	0990_MW141_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW141	24 Nov 2017	0990_MW141_171124	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW141	19 Jan 2018	0990_MW141_180119	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.06	<0.01	<0.01	0.02	0.05	0.02	<0.01	<0.01	<0.01	0.2	0.08
MW141	26 Mar 2018	0990_MW141_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW141	22 Apr 2020	0990_MW141_200422	Primary	<0.05	<0.05	0.06	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.07	<0.02	<0.02	<0.02	0.02	<0.02	0.08	0.17	<0.02	0.01	0.06	0.1	0.04	<0.05	<0.02	<0.02	0.61	0.23
MW142	14 Sep 2017	0990_MW142A_170914	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
MW142	14 Sep 2017	0990_MW142B_170914	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
MW142	14 Sep 2017	0990_MW142C_170914	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.08
MW142	14 Sep 2017	0990_QCGW244_170914	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
MW142	14 Sep 2017	0990_QCGW245_170914	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
MW142	15 Sep 2017	0990_MW142D_170915	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
MW142	21 Sep 2017	0990_MW142_170921	Primary	<0.001	0.001	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.001	<0.001	0.004	<0.001	<0.001	0.002	0.065	<0.001	<0.001	0.051	<0.001	<0.001	<0.001	<0.001	<0.001	0.129	0.12
MW142	22 Nov 2017	0990_MW142_171122	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.06
MW142	19 Jan 2018	0990_MW142_180119	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
MW142	26 Mar 2018	0990_MW142_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
MW142	19 Dec 2018	0990_MW142_181219	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.09
MW142	20 Apr 2021	0990_MW142_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.09	<0.02	<0.02	<0.05	<0.02	<0.02	0.15	0.12

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
MW142	10 Oct 2021	0990_MW142_211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
MW142	20 Oct 2022	0990_MW142_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW142	25 Sep 2023	0990_MW142_230925	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
MW143	21 Sep 2017	0990_MW143_170921	Primary	<0.001	0.001	0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.003	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0.021	<0.001	<0.001	0.02	<0.001	<0.001	<0.001	<0.001	<0.001	0.053	0.04
MW143	22 Nov 2017	0990_MW143_171122	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
MW143	19 Jan 2018	0990_MW143_180119	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
MW143	26 Mar 2018	0990_MW143_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
MW144	20 Oct 2022	0990_MW144_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW144	25 Sep 2023	0990_MW144_230922	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW149	18 Nov 2020	0990_MW149_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.06	<0.05	<0.05	<0.02	0.8	3.7	<0.02	<0.02	0.08	0.73	2.55	3.71	13.6	0.04	1.81	37.8	1.42	2.84	<0.05	<0.02	<0.02	69.1	51.4
MW149	20 Oct 2022	0990_MW149_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.28	<0.05	<0.02	<0.05	7.2	22.3	<0.02	<0.02	0.09	3.7	17	34.4	180	0.15	9.70	257	9.2	28.3	<0.05	<0.02	<0.02	569	437.00
MW149	04 Apr 2023	0990_MW149_230404	Primary	<0.05	<0.05	0.17	<0.05	<0.05	<0.02	<0.05	0.94	<0.05	<0.05	<0.02	44.4	135	0.07	<0.02	0.23	29	117	209	1030	0.79	68	2030	55.4	169	<0.05	<0.02	<0.02	3890	3060
MW149	26 Sep 2023	0990_QC214_230926	Inter-lab Duplicate	<0.01	<0.01	0.055	0.039	<0.02	<0.01	<0.05	0.22	<0.02	<0.05	<0.01	8.8	30	0.014	<0.01	<0.01	5.9	14	39	220	0.27	11	300	12	25	<0.02	<0.02	<0.01	666.298	520
MW149	26 Sep 2023	0990_MW149_230926	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.43	<0.05	<0.05	<0.02	8.6	28.1	0.02	<0.02	0.06	5.88	20.2	49.1	221	0.19	12.6	261	10	31.6	<0.05	<0.02	<0.02	649	482
MW149	26 Sep 2023	0990_QC114_230926	Intra-lab Duplicate	<0.5	<0.5	<0.5	<0.5	<1.25	<0.5	<1.25	<0.5	<1.25	<1.25	<0.5	8.2	30.9	<0.5	<0.5	<0.5	5.85	19.7	43.9	210	<0.5	13.8	365	11.1	28.4	<1.25	<0.5	<0.5	737	575
MW149	13 Dec 2023	0990_MW149_231213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.29	<0.05	<0.05	<0.02	6.7	22	<0.02	<0.02	0.06	4.8	17.2	34.5	142	0.17	9.99	201	9	24.9	<0.05	<0.02	<0.02	473	343
MW149	16 Jan 2024	0990_MW149_240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.24	<0.05	<0.05	<0.02	11.2	35.7	<0.02	<0.02	0.04	7.7	34.6	52.9	248	0.33	14.4	372	14	35.6	<0.05	<0.02	<0.02	827	620
MW149	13 Feb 2024	0990_MW149_240213	Primary	<0.05	<0.05	0.09	<0.05	<0.12	<0.05	<0.12	0.36	<0.12	<0.12	<0.05	21.8	71.4	<0.05	<0.05	<0.05	15.2	87.2	112	525	0.56	36.7	1050	31.3	71	<0.12	<0.05	<0.05	2020	1580
MW149	13 Feb 2024	0990_QC100_240213	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	0.42	<0.12	<0.12	<0.05	29.5	82.3	<0.05	<0.05	<0.05	21.4	71.6	139	685	0.73	47.2	1310	45.1	80.8	<0.12	<0.05	<0.05	2510	2000
MW149	13 Feb 2024	0990_QC200_240213	Inter-lab Duplicate	<0.01	<0.01	0.045	0.012	<0.02	<0.01	<0.05	0.062	<0.02	<0.05	<0.01	15	50	<0.01	<0.01	<0.01	9.9	34	70	360	0.42	19	570	19	38	<0.02	<0.02	<0.01	93.96	930
MW149	12 Mar 2024	0990_MW149_240312	Primary	<0.5	<0.5	<0.5	<0.5	<1.25	<0.5	<1.25	0.56	<1.25	<1.25	<0.5	22.6	70.6	<0.5	<0.5	<0.5	15	55.7	118	484	0.62	35	962	26.8	74.2	<1.25	<0.5	<0.5	1860	1450
MW149	11 Apr 2024	0990_MW149_240411	Primary	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.12	0.32	<0.12	<0.12	<0.05	9	27	<0.05	<0.05	<0.05	6.8	18.6	48.5	161	0.54	15.1	362	13.3	26.2	<0.12	<0.05	<0.05	704	523
MW149	08 May 2024	0990_MW149_240508	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.27	<0.05	<0.05	<0.02	8.4	23.6	0.05	<0.02	0.17	5.8	21.7	41.7	156	0.36	13.2	368	9.88	33.8	<0.05	<0.02	<0.02	702	524
MW204	23 Apr 2020	0990_MW204_200423	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.3	1.15	<0.02	<0.02	<0.02	0.38	0.72	2.7	6.3	<0.02	1.02	26.6	0.56	1.08	<0.05	<0.02	<0.02	40.8	32.90
MW231	29 Apr 2017	0990_NT0064MW12_170429	Primary	<1.5	<1.5	7.8	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	30	61	<0.3	<0.3	<0.3	47	24	280	240	1.1	87.00	270	65	57	<0.3	<0.3	<0.3	-	510.00
MW231	20 Jul 2017	0990_064MW12_170723	Primary	<0.01	<0.01	30	0.69	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	87	220	<0.01	0.15	<0.01	140	93	730	730	2.6	230.00	400	160	170	<0.01	<0.01	<0.01	-	1130.00
MW231	01 Sep 2017	0990_NT0064MW12A_20170901	Primary	<0.2	<0.2	28	0.21	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	80	180	<0.2	<0.2	<0.2	130	110	560	810	2.4	200.00	290	150	150	<0.2	<0.2	<0.2	2,690.61	1100.00
MW231	01 Sep 2017	0990_NT0064MW12B_20170901	Primary	<0.2	<0.2	24	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	75	160	<0.2	<0.2	<0.2	110	90	500	740	2	200.00	270	120	130	<0.2	<0.2	<0.2	2,421	1010.00
MW231	01 Sep 2017	0990_NT0064MW12C_20170901	Primary	<0.2	<0.2	40	0.23	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	120	260	<0.2	<0.2	<0.2	170	230	720	960	3.5	310.00	370	200	280	<0.2	<0.2	<0.2	3,663.73	1330.00
MW231	24 Sep 2017	0990_064MW12_170924	Primary	<0.01	<0.01	5.6	0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	71	140	<0.01	<0.01	<0.01	140	190	250	260	4	150.00	110	90	63	<0.01	<0.01	<0.01	1,473.64	370.00
MW231	24 Sep 2017	0990_QCMW279_170924	Intra-lab Duplicate	<0.01	0.05	6.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	51	150	<0.01	<0.01	<0.01	130	140	240	400	4.1	230.00	500	74	65	<0.01	<0.01	<0.01	1,990.30	900.00
MW231	02 Feb 2018	0990_NT0064MW12_180202	Primary	<0.2	<0.2	9.7	0.78	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	51	140	<0.2	<0.2	<0.2	75	110	340	480	2	130.00	650	97	140	<0.2	<0.2	<0.2	2,225.48	1130.00
MW231	28 Mar 2018	0990_064MW12_180328	Primary	<0.2	<0.2	17	0.91	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	87	250	<0.2	<0.2	<0.2	140	120	690	940	4.2	190.00	790	160	170	<0.2	<0.2	<0.2	3,559.11	1730.00
MW231	19 Dec 2018	0990_064MW12_181219	Primary	<2	<2	15	<2	<2	<2	<2	<2	<2	<2	<2	42	80	<2	<2	<2	57	49	440	410	3.6	100.00	480	70	55	<2	<2	<2	1,801.60	890.00
MW231	19 Dec 2018	0990_QCMW879_181219	Intra-lab Duplicate	<2	<2	15	<2	<2	<2	<2	<2	<2	<2	<2	37	75	<2	<2	<2	57	43	450	380	2.8	98.00	400	57	56	<2	<2	<2	1,670.80	780.00
MW231	19 Dec 2018	0990_QCMW880_181219	Inter-lab Duplicate	<0.10	<0.10	20.6	0.96	<0.25	<0.10	<0.25	<0.10	<0.25	<0.10	<0.25	63.8	125	<0.10	<0.10	<0.10	102	83.5	417	614	5.1	159.00	488	125	120	<0.25	<0.10	<0.10	2,320	1100.00
MW231	23 Apr 2020	0990_MW231_200423	Primary	<0.05	<0.05	1.36	0.11	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	3.9	11.4	<0.02	<0.02	<0.02	6.69	6.14	33.8	59.6	0.31	11.40	79.8	7.4	11.4	<0.05	<0.02	<0.02	233	139.00
MW231	21 Apr 2021	0990_MW231_210421	Primary	<0.40	<0.40	60.9	4.24	<1.00	<0.40	<1.00	<0.40	<1.00	<0.40	<1.00	431	731	<0.40	<0.40	<0.40	390	531	2,240	2,760	19	547.00	2,100	482	623	<1.00	<0.40	<0.40	10,900	4860.00
MW231	08 Jun 2021	0990_MW231_210608	Primary	<0.05	0.17	89	12.4	<0.11	<0.04	<0.11	<0.04	<0.11	<0.04	<0.11	352	756	0.34	<0.04	0.3	330	433	2,560	3,000	30.2	672.00	3,160	605	605	<0.11	<0.04	<0.04	12,600	6160.00
MW231	09 Oct 2021	0990_MW231_211009	Primary	<0.05	0.05	30.8	9.69	<0.12	<0.05	<0.12	<0.05	<0.12	<0.05	<0.12	101	165	0.21	<0.05	<0.05	129	82.5	646	722	9.7	215.00	802	178	142	<0.12	<0.05	<0.05	3,230	1520.00
MW231	21 Oct 2022	0990_MW231_11.0_221021	Primary	<0.05	0.14	53	7.5	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	270	566	0.18	<0.02	0.06	334	246	2,080	2,450	14.2	642.00	1,290	462	498	<0.05	<0.02	<0.02	8,910	3740.00
MW231	26 Sep 2023	0990_MW231_9.0_230926	Primary	<0.5	<0.5	64.8	8.68	<1.25	<0.5	<1.25	<0.5	<1.25	<1.25	<0.5	227	495	<0.5	<0.5	<0.5	329	351	1910	2370	14.8	568	1860	444	416	<1.25	<0.5	<0.5	9060	4230
MW231	26 Sep 2023	0990_MW231_14.0_230926	Primary	<0.5	<0.5	60.4	8.3	<1.25	<0.5	<1.25	<0.5	<1.25	<1.25	<0.5	216	490	<0.5	<0.5	<0.5	306	320	1840	2300	14.5	552	1760	434	371	<1.25	<0.5	<0.5	8670	4060
MW231	26 Sep 2023	0990_MW231_22.0_230926	Primary	<0.5	<0.5	64.7	11.3	<1.25	<0.5	<1.25	<0.5	<1.25	<1.25	<0.5	225	501	<0.5	<0.5	<0.5	321	361	1970	2340	15	567	1830	441	428	<1.25	<0.5	<0.5	9080	4170
MW244	20 Jul 2017	0990_053MW02_170720	Primary	<0.01	<0.01	2.3	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	0.52	<0.01	<0.01	<0.01	0.45	0.24	0.92	3.6	0.01	0.42	11	0.61	0.68	<0.01	<0.01	<0.01	-	14.60
MW244	27 Nov 2017	0990_053MW02_171127	Primary	<0.01	<0.01	0.55	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.08	<0.01	<0.01	<0.01	0.12	0.06	0.19	0.82	<0.01	0.11	3.3	0.15	0.11	<0.01	<0.01	<0.01	5.55	4.12
MW244	27 Jan 2018	0990_053MW02_180127	Primary	<0.01	<0.01	0.38	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.35	<0.01	<0.01	<0.01	0.28	0.21	0.66	2.9	<0.01	0.27	4.7	0.48	0.42	<0.01	<0.01	<0.01	10.84	7.60
MW244	27 Mar 2018	0990_053MW02_180327	Primary	<0.01	<0.01	0.67	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	0.9	<0.01	<0.01	<0.01	0.25	0.3	1.1	6.6	0.01	0.39	14	0.53	1.1	<0.01	<0.01	<0.01	26.09	20.60
MW244	27 Mar 2018	0990_QCMW723_180321	Inter-lab Duplicate	<0.05	<0.05	0.42	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.2	0.74	<0.02	<0.02	<0.02	0.21	0.25	0.79	5.64	<0.02	0.37	6.66	0.36	0.79	<0.05	<0.02	<0.02	16.4	12.30
MW244	19 Dec 2018	0990_053MW02_181219	Primary	<0.01	0.1	1.8	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.86	0.66	<0.01	<0.01	<0.01	0.99	0.43	4.4	3.6	<0.01	0.34	8.3	2.4	0.86	<0.01	<0.01	<0.01	24.74	11.90
MW244	23 Apr 2020	0990_MW244_200423	Primary	<0.05	<0.05	1.15	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.5	1.02	<0.02	<0.02	<0.02	0.25	0.21	1.05	3.19	<0.02	0.21	4.42	0.79	1.14	<0.05	<0.02	<0.02	13.9	7.61
MW244	21 Apr 2021	0990_MW244_210421	Primary	<0.05	<0.05	1.77	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.4	1.32	<0.02	<0.02	<0.02	0.3	0.22	1.24	3.78	<0.02	0.26	4.92	0.78	1.33	<0.05	<0.02	<0.02	16.3	8.70
MW244	09 Oct 2021	0990_MW244_211009	Primary	<0.05	<0.05	3.82	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.4	0.46	<0.02	<0.02	<0.02	0.76	0.29	1.43	2.86	<0.02	0.56	6.96	1.58	0.58	<0.05	<0.02	<0.02	19.7	9.82
MW244	20 Oct 2022	0990_MW244_221020	Primary	<0.05	<0.05	1.82	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.4	0.49	<0.02	<0.02	<0.02	0.44	0.22	1.16	3.37	<0.02	0.36	4.76	0.98	0.58	<0.05	<0.02	<0.02	14.6	8.13
MW244	26 Sep 2023	0990_MW244_230926	Primary	<0.05	<0.05	2.61	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	0.5	0.53	<0.02	<0.02	<0.02	0.98	0.53	1.88	3.98	0.03	0.76	11.3	1.37	0.64	<0.05	<0.02	<0.02	25.1	15.3
MW278	07 Jun 2016	076MW02	Primary	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.12	8.51	-	-	-	-	-	-	-
MW278	02 May 2017	0990_076MW02_170502	Primary	<0.01	<0.01	<1	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.21	2	<0.01	<0.01	<0.01	0.21	0.84	1.7	11.1	<0.01	0.35	15	0.39	1.4	<0.01	<0.01	<0.01	-	26.10

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
MW278	20 Jul 2017	0990_076MW02_170720	Primary	<0.01	<0.01	0.06	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	0.58	<0.01	<0.01	0.02	0.1	0.32	0.79	4.2	<0.01	0.17	9.3	0.22	0.54	<0.01	<0.01	<0.01	-	13.50
MW278	04 Sep 2017	0990_076MW02A_170904	Primary	<0.01	<0.01	0.06	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	0.31	<0.01	<0.01	<0.01	0.13	0.18	0.58	7.3	<0.01	0.19	6.6	0.2	0.5	<0.01	<0.01	<0.01	16.17	13.90
MW278	04 Sep 2017	0990_076MW02B_170904	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	0.02	0.02	0.07	0.83	<0.01	0.02	0.53	0.03	0.07	<0.01	<0.01	<0.01	1.63	1.36
MW278	04 Sep 2017	0990_076MW02C_170904	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	0.02	0.02	0.07	0.8	<0.01	0.02	0.63	0.03	0.07	<0.01	<0.01	<0.01	1.7	1.43
MW278	28 Sep 2017	0990_076MW02_170928	Primary	<0.01	<0.01	0.07	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.27	<0.01	<0.01	0.01	0.1	0.14	0.54	5.7	<0.01	0.20	5.9	0.21	0.34	<0.01	<0.01	<0.01	13.56	11.60
MW278	28 Nov 2017	0990_076MW02_171128	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.17	<0.01	<0.01	0.02	0.08	0.17	0.42	4.9	<0.01	0.19	6.3	0.19	0.23	<0.01	<0.01	<0.01	12.76	11.20
MW278	29 Jan 2018	0990_076MW02_180129	Primary	<0.01	<0.01	<0.05	0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.21	<0.01	<0.01	<0.01	0.07	0.2	0.35	2.9	<0.01	0.11	9	0.12	0.21	<0.01	<0.01	<0.01	13.28	11.90
MW278	27 Mar 2018	0990_076MW02_180327	Primary	<0.01	<0.01	<0.05	0.03	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.49	<0.01	<0.01	<0.01	0.08	0.28	0.66	5.1	<0.01	0.19	8.9	0.18	0.47	<0.01	<0.01	<0.01	16.48	14.00
MW278	18 Jan 2019	0990_076MW02_190118	Primary	<0.01	<0.01	<0.05	0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.19	<0.01	<0.01	<0.01	0.08	0.16	0.45	4.2	<0.01	0.14	8	0.16	0.3	<0.01	<0.01	<0.01	13.81	12.20
MW278	18 Jan 2019	0990_QCMW882_190118	Intra-lab Duplicate	<0.01	<0.01	<0.05	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.01	<0.01	0.01	0.05	0.08	0.23	2	<0.01	0.08	2.7	0.09	0.23	<0.01	<0.01	<0.01	5.59	4.70
MW278	18 Jan 2019	0990_QCMW883_190118	Inter-lab Duplicate	<0.05	<0.05	0.06	<0.05	<0.05	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	0.1	0.21	<0.02	<0.02	<0.02	0.11	0.16	0.57	4.48	<0.02	0.16	6.5	0.22	0.36	<0.05	<0.02	<0.02	13	11.00
MW278	24 Apr 2020	0990_MW278_200424	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.1	0.13	<0.02	<0.02	<0.02	0.09	0.12	0.36	3.54	<0.02	0.13	5.2	0.16	0.23	<0.05	<0.02	<0.02	9.98	8.74
MW278	24 Apr 2020	0990_QC105_200424	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	0.02	<0.05	<0.02	<0.05	<0.1	0.15	<0.02	<0.02	<0.02	0.1	0.14	0.37	3.31	<0.02	0.12	5.2	0.16	0.22	<0.05	<0.02	<0.02	9.79	8.51
MW278	24 Apr 2020	0990_QC205_200424	Inter-lab Duplicate	<0.01	<0.01	0.032	0.022	<0.02	<0.01	<0.05	0.059	<0.02	<0.01	<0.05	0.093	0.11	<0.01	<0.01	0.017	0.1	0.098	0.4	2.5	<0.01	0.13	3.8	0.16	0.17	<0.02	<0.02	<0.01	-	6.30
MW278	19 Apr 2021	0990_MW278_210419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.2	0.96	<0.02	<0.02	0.02	0.11	0.52	1.09	7.46	<0.02	0.22	8.56	0.24	1	<0.05	<0.02	<0.02	20.4	16.00
MW278	08 Oct 2021	0990_MW278_211008	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.1	0.85	<0.02	<0.02	<0.02	0.11	0.3	1.04	7.35	<0.02	0.24	5.68	0.19	0.92	<0.05	<0.02	<0.02	16.8	13.00
MW278	19 Oct 2022	0990_MW278_221019	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.1	0.6	<0.02	<0.02	<0.02	0.1	0.29	0.74	6.7	<0.02	0.24	7	0.18	0.7	<0.05	<0.02	<0.02	16.6	13.70
MW278	26 Sep 2023	0990_MW278_230926	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	0.1	0.67	<0.02	<0.02	<0.02	0.1	0.39	0.88	6.62	<0.02	0.3	7.14	0.18	0.62	<0.05	<0.02	<0.02	17	13.8
MW285	28 Apr 2017	0990_077MW01_170428	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	<0.01	0.01	0.05	0.37	<0.01	0.01	0.22	0.02	0.03	<0.01	<0.01	<0.01	-	0.59
MW285	28 Apr 2017	0990_NT0077MW01_170428	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.03	0.26	<0.01	0.02	0.77	0.02	0.03	<0.01	<0.01	<0.01	-	1.03
MW285	28 Apr 2017	0990_QC2GW_170428	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	<0.01	0.01	0.06	0.42	<0.01	0.01	0.25	0.02	0.04	<0.01	<0.01	<0.01	-	0.67
MW285	28 Sep 2017	0990_077MW01_170928	Primary	0.02	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.32	<0.01	0.01	0.22	0.01	0.03	<0.01	<0.01	<0.01	0.66	0.54
MW285	28 Nov 2017	0990_077MW01_171128	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.01	<0.01	<0.01	<0.01	0.02	0.02	0.28	<0.01	<0.02	0.26	<0.01	0.03	<0.01	<0.01	<0.01	0.64	0.54
MW285	29 Jan 2018	0990_077MW01_180129	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.26	<0.01	<0.01	0.27	<0.01	0.03	<0.01	<0.01	<0.01	0.62	0.53
MW285	27 Mar 2018	0990_077MW01_180327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.42	<0.01	<0.01	0.27	<0.01	0.04	<0.01	<0.01	<0.01	0.8	0.69
MW285	24 Apr 2020	0990_MW285_200424	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.15	<0.02	<0.01	0.17	<0.02	<0.02	<0.05	<0.02	<0.02	0.32	0.32
MW285	19 Apr 2021	0990_MW285_210419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.23	<0.02	0.01	0.21	<0.02	0.03	<0.05	<0.02	<0.02	0.52	0.44
MW285	08 Oct 2021	0990_MW285_211008	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.22	<0.02	<0.01	0.14	<0.02	0.02	<0.05	<0.02	<0.02	0.4	0.36
MW285	19 Oct 2022	0990_MW285_221019	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.21	<0.02	<0.01	0.18	<0.02	0.02	<0.05	<0.02	<0.02	0.44	0.39
MW285	26 Sep 2023	0990_MW285_230926	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.23	<0.02	<0.01	0.42	<0.02	<0.02	<0.05	<0.02	<0.02	0.68	0.65
MW400	14 May 2018	0990_MW145A_180514	Primary	<0.01	<0.01	0.34	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.01	<0.01	<0.01	0.02	0.04	0.13	0.71	<0.01	0.05	1.4	0.04	0.16	<0.01	<0.01	<0.01	3	2.11
MW400	14 May 2018	0990_MW145B_180514	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.01	<0.01	<0.01	0.02	0.04	0.13	0.75	<0.01	0.04	1.4	0.03	0.16	<0.01	<0.01	<0.01	2.68	2.15
MW400	14 May 2018	0990_MW145C_180514	Primary	<0.01	<0.01	0.84	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.01	<0.01	<0.01	0.02	0.04	0.12	0.7	<0.01	0.04	1.4	0.03	0.13	<0.01	<0.01	<0.01	3.42	2.10
MW400	14 May 2018	0990_QCMW830_180514	Intra-lab Duplicate	<0.01	<0.01	0.51	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.01	<0.01	<0.01	0.02	0.04	0.13	0.74	<0.01	0.05	1.4	0.03	0.15	<0.01	<0.01	<0.01	3.18	2.14
MW400	14 May 2018	0990_QCMW831_180514	Inter-lab Duplicate	<0.05	<0.05	0.17	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.1	<0.02	<0.02	<0.02	<0.02	0.07	0.09	0.94	<0.02	<0.01	0.97	0.03	0.12	<0.05	<0.02	<0.02	2.49	1.91
MW400	19 Dec 2018	0990_MW145_181219	Primary	<0.01	<0.01	2.6	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.01	<0.01	<0.01	0.02	0.04	0.25	0.84	<0.01	0.04	1.5	0.02	0.03	<0.01	<0.01	<0.01	5.45	2.34
MW400	24 Apr 2020	0990_MW400_200424	Primary	<0.05	<0.05	0.34	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.11	<0.02	<0.02	<0.02	<0.02	0.06	0.13	0.75	<0.02	0.04	1.19	0.02	0.12	<0.05	<0.02	<0.02	2.76	1.94
MW400	20 Apr 2021	0990_MW400_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.11	<0.02	<0.02	<0.02	<0.02	0.06	0.15	0.87	<0.02	0.04	1.43	0.03	0.13	<0.05	<0.02	<0.02	2.82	2.30
MW400	09 Oct 2021	0990_MW400_211009	Primary	<0.05	<0.05	1.98	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.14	<0.02	<0.02	<0.02	0.02	0.04	0.11	0.62	<0.02	0.03	1.18	0.02	0.11	<0.05	<0.02	<0.02	4.25	1.80
MW400	20 Oct 2022	0990_MW400_2210	Primary	<0.05	<0.05	2.65	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.14	<0.02	<0.02	<0.02	0.03	0.05	0.14	0.75	<0.02	0.04	1.5	0.02	0.13	<0.05	<0.02	<0.02	5.45	2.25
MW400	20 Oct 2022	0990_QC100_221020	Intra-lab Duplicate	<0.05	<0.05	3.2	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.15	<0.02	<0.02	<0.02	0.02	0.04	0.13	0.73	<0.02	0.04	1.44	0.02	0.12	<0.05	<0.02	<0.02	5.89	2.17
MW400	20 Oct 2022	0990-QC200_221020	Inter-lab Duplicate	<0.01	<0.01	2.1	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.11	0.073	<0.01	<0.01	<0.01	0.014	0.027	0.087	0.56	<0.01	0.03	0.97	<0.02	0.081	<0.02	<0.02	<0.01	-	1.53
MW400	25 Sep 2023	0990_MW400_230925	Primary	<0.05	<0.05	1.79	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.12	<0.02	<0.02	<0.02	0.02	0.04	0.11	0.52	<0.02	0.04	1.24	0.02	0.12	<0.05	<0.02	<0.02	4.02	1.76
MW403	13 Sep 2017	0990_064MW08A_170913	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW403	22 Sep 2017	0990_064MW08_170923	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW403	02 Nov 2017	0990_064MW108_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW403	26 Nov 2017	0990_064MW08_171126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW403	18 Dec 2018	0990_064MW08_181218	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
MW403	04 Mar 2019	0990_064MW08_190304	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW403	20 Apr 2021	0990_MW403_210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW403	09 Oct 2021	0990_MW403_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW403	27 Sep 2023	0990_MW403_230927	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW404	17 Mar 2014	BLD33-NORTH	Primary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	0.7	-	-	-	-	-	-	-
MW404	24 May 2016	BLD33-NORTH	Primary	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	11.2	-	-	-	-	-	-	-
MW404	24 May 2016	RBD QA2	Intra-lab Duplicate	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	0.1	-	-	-	-	-	-	-
MW404	24 May 2016	RBD QA2	Intra-lab Duplicate	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.19	13.9	-	-	-	-	-	-	-
MW404	29 Apr 2017	0990_NT0064MW10_170429	Primary	<0.01	<0.01	<0.05	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.18	0.65	<0.01	<0.01	<0.01	0.09	0.14	1.1	4.3	<0.01	0.15	3.8	0.25	0.45	<0.01	<0.01	<0.01	-	8.10

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
MW405	18 Dec 2018	0990_065MW02_181218	Primary	<0.01	<0.01	3.2	12	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	7.4	7.2	0.24	<0.01	<0.01	13	11	26	42	2.4	12.00	160	15	5.8	<0.01	<0.01	0.02	317.34	202.00
MW406	28 Apr 2017	0990_NT0065MW03_170428	Primary	<0.01	<0.01	0.17	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	2.5	6.1	<0.01	<0.01	<0.01	2.3	3	17	34	0.09	5.40	110	3.9	5.6	<0.01	<0.01	<0.01	-	144.00
MW406	06 Sep 2017	0990_65MW03A_170906	Primary	<0.01	<0.01	<0.05	0.03	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.37	0.69	0.01	<0.01	<0.01	0.2	0.44	1.9	5.5	<0.01	0.58	72	0.43	0.71	<0.01	<0.01	<0.01	82.86	77.50
MW406	06 Sep 2017	0990_65MW03C_170906	Primary	<0.2	<0.2	0.28	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	4.4	7.3	<0.2	<0.2	<0.2	3.5	5.9	21	52	<0.2	7.20	130	5.5	6.8	<0.2	<0.2	<0.2	244.18	182.00
MW406	06 Sep 2017	0990_65MW03D_170906	Primary	<0.01	<0.01	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.26	0.48	<0.01	<0.01	0.01	0.26	0.34	1.4	4.2	0.02	0.55	20	0.42	0.53	<0.01	<0.01	<0.01	28.55	24.20
MW406	26 Nov 2017	0990_065MW03_171126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	0.38	<0.01	<0.01	<0.01	0.08	0.27	0.97	2.9	<0.01	0.21	43	0.14	0.3	<0.01	<0.01	<0.01	48.38	45.90
MW406	26 Jan 2018	0990_NT0065MW03_180126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	0.39	<0.01	<0.01	<0.01	0.11	0.39	1.2	3.4	<0.01	0.31	49	0.17	0.45	<0.01	<0.01	<0.01	55.58	52.40
MW406	16 Mar 2018	0990_65MW03_180316	Primary	<0.01	<0.01	<0.05	0.04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.62	1.4	<0.01	<0.01	<0.01	0.52	1.1	4.5	10	0.02	1.30	71	1.3	1.7	<0.01	<0.01	<0.01	93.5	81.00
MW406	23 Apr 2020	0990_MW406_200423	Primary	<0.05	<0.05	0.07	0.17	<0.05	<0.02	<0.05	0.04	<0.05	<0.02	<0.05	0.8	1.59	<0.02	<0.02	<0.02	0.82	1.01	4.9	9.27	0.06	1.65	26	1.08	1.86	<0.05	<0.02	<0.02	49.3	35.30
MW406	19 Apr 2021	0990_MW406_210419	Primary	<0.05	<0.05	0.06	0.18	<0.05	<0.02	<0.05	0.1	<0.05	<0.02	<0.05	1.4	2.85	<0.02	<0.02	0.02	1.34	1.6	8.91	17.9	0.09	2.66	31.9	2.03	2.9	<0.05	<0.02	<0.02	73.9	49.80
MW406	19 Apr 2021	0990_QC100_210419	Intra-lab Duplicate	<0.05	<0.05	0.07	0.24	<0.05	<0.02	<0.05	0.1	<0.05	<0.02	<0.05	1.2	2.43	<0.02	<0.02	<0.02	1.23	1.89	7.27	14.8	0.08	2.36	32	1.76	2.83	<0.05	<0.02	<0.02	68.3	46.80
MW406	19 Apr 2021	0990_QC200_210419	Inter-lab Duplicate	<0.01	<0.01	0.064	0.2	<0.02	<0.01	<0.05	0.029	<0.02	<0.01	<0.05	1.1	1.7	0.01	<0.01	<0.01	0.82	0.96	4.1	9.5	0.07	1.50	24	1.3	1.5	<0.02	<0.02	<0.01	-	33.50
MW406	09 Oct 2021	0990_MW406_211009	Primary	<0.05	<0.05	0.07	0.16	<0.05	<0.02	<0.05	0.17	<0.05	<0.02	<0.05	2.8	5.67	0.02	<0.02	0.04	2.34	3.09	16.2	30.8	0.17	3.52	99.6	4.18	5.19	<0.05	<0.02	<0.02	174	130.00
MW528	10 Nov 2017	0990_PB113_171110	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	0.1	<0.01	0.01	<0.01	<0.01	<0.01	0.19	0.17
MW528	14 Feb 2019	RN037412_190214	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.09	<0.01	<0.01	0.08	<0.01	0.02	<0.01	<0.01	<0.01	0.22	0.17
MW528	10 Apr 2019	0990_RN037412_190410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.04	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	0.15	0.11
MW528	12 Jun 2019	0990_RN037412-190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.04	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	0.13	0.12
MW528	04 Dec 2019	0990_QC100_191204	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.06	0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.09
MW528	04 Dec 2019	0990_QC200_191204	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.021	<0.01	<0.01	0.062	<0.02	<0.01	<0.02	<0.02	<0.01	-	0.08
MW528	04 Dec 2019	0990_MW528_191204	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.08	0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.11
MW528	17 Feb 2020	0990_MW528_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	0.10
MW528	21 Apr 2020	0990_MW528_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.08	0.04	<0.02	<0.05	<0.02	<0.02	0.15	0.11
MW528	22 Jul 2020	0990_MW528_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
MW528	18 Nov 2020	0990_MW528_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
MW528	18 Nov 2020	0990_QC105_201118	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
MW528	18 Nov 2020	0990_QC205_201118	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.069	0.026	<0.01	<0.01	0.063	<0.02	<0.01	<0.02	<0.02	<0.01	-	0.09
MW528	10 Dec 2020	0990_MW528_201210	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
MW528	01 Feb 2021	0990_MW528_210201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.01	0.12	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	0.16
MW528	02 Feb 2021	0990_QC101_210202	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	0.01	0.12	<0.02	<0.02	<0.05	<0.02	<0.02	0.16	0.15
MW528	02 Feb 2021	0990_QC201_210202	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.022	<0.01	<0.01	0.063	<0.02	<0.01	<0.02	<0.02	<0.01	-	0.09
MW528	23 Apr 2021	0990_MW528_210423	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.03	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.09
MW528	06 Jul 2021	0990_MW528_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.12	0.12
MW528	10 Oct 2021	0990_MW528_211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
MW732	12 May 2017	0990_RN002522_170512	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	*0.05*	0.41	<0.01	*0.02*	0.61	*0.01*	0.05	<0.01	<0.01	<0.01	-	1.02
MW732	19 Jul 2017	0990_RN002522_170719	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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
MW732	29 Sep 2017	0990_RN2522_170929	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
MW732	28 Nov 2017	0990_RN002522_171128	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	*0.05*	0.37	<0.01	*0.03*	0.6	*0.01*	0.05	<0.01	<0.01	<0.01	1.18	0.97
MW732	02 Feb 2018	0990_RN002522_180202	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	*0.07*	0.45	<0.01	*0.02*	0.55	*0.01*	0.07	<0.01	<0.01	<0.01	1.25	1.00
MW732	26 Mar 2018	0990_RN2522_180326	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	*0.07*	0.44	<0.01	*0.02*	0.85	*0.02*	0.11	<0.01	<0.01	<0.01	1.59	1.29
MW732	21 Apr 2020	0990_QC100_200421	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	*0.06*	0.48	<0.02	*0.02*	0.58	<0.02	0.05	<0.05	<0.02	<0.02	1.27	1.06
MW732	21 Apr 2020	0990_QC200_200421	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.049	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	*0.059*	0.35	<0.01	*0.02*	0.41	<0.02	0.053	<0.02	<0.02	<0.01	-	0.76
MW732	21 Apr 2020	0990_RN002522_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	*0.07*	0.48	<0.02	*0.02*	0.62	<0.02	0.06	<0.05	<0.02	<0.02	1.34	1.10
MW732	09 Oct 2021	0990_MW732_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
MW732	20 Oct 2022	0990_MW732_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	<0.02	<0.02	<0.01	0.17	<0.02	<0.02	<0.05	<0.02	<0.02	0.28	0.28
MW732	25 Sep 2023	0990_MW732_230925	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.16	<0.02	<0.01	0.3	<0.02	0.03	<0.05	<0.02	<0.02	0.55	0.46
MW734	12 May 2017	0990_RN022392_170512	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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
MW734	20 Jul 2017	0990_RN022392_170720	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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
MW734	23 Sep 2017	0990_RN022392_170923	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01
MW734	02 Nov 2017	0990_RN022392_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW734	27 Nov 2017	0990_RN022392_171127	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW734	26 Jan 2018	0990_RN022392_180126	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW734	21 Mar 2018	0990_RIN022392_180321	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW734	19 Nov 2020	0990_RN022392_201119	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW735	24 Sep 2017	0990_RN29430_170924	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
MW735	02 Nov 2017	0990_RN029430_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
MW735	24 Apr 2020	0990_RN029430_200424	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
MW735	21 Oct 2022	0990_RN029430_221021	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
OTH111	27 Mar 2018	0990_RN028782_180327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
OTH111	19 Dec 2018	0990_RN028782_181219	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
OTH111	23 Apr 2020	0990_RN028782_200423	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH111	21 Apr 2021	0990_RN028782_210421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH111	09 Oct 2021	0990_OTH111_211009	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
OTH111	20 Oct 2022	0990_OTH111_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
OTH111	26 Sep 2023	0990_OTH111_230926	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
OTH112	17 Jan 2019	0990_RN025650_190117	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
OTH112	22 Apr 2020	0990_RN025650_200422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH112	22 Apr 2021	0990_RN025650_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH112	08 Oct 2021	0990_OTH112_211008	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH112	08 Oct 2021	0990_QC100_211008	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH112	08 Oct 2021	0990_QC200_211008	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
OTH112	20 Oct 2022	0990_OTH112_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH112	26 Sep 2023	0990_OTH112_230926	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH113	24 Aug 2017	0990_RN021099_170824	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	0.17	0.15
OTH113	17 Oct 2017	0990_RN021099_171017	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.08	<0.01	<0.01	0.11	<0.01	0.02	<0.01	<0.01	<0.01	0.24	0.19
OTH113	14 Feb 2018	0990_021099_180214	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	0.11	<0.01	0.01	<0.01	<0.01	<0.01	0.2	0.17
OTH113	05 Apr 2018	0990_RN021099_180405	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	0.11	<0.01	0.01	<0.01	<0.01	<0.01	0.21	0.18
OTH113	21 Jan 2019	0990_RN021099_190121	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	0.07	<0.01	0.01	<0.01	<0.01	<0.01	0.15	0.12
OTH113	21 Apr 2020	0990_RN021099_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.01	0.09	<0.02	<0.02	<0.05	<0.02	<0.02	0.16	0.16
OTH113	22 Apr 2021	0990_RN021099_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.18	0.16
OTH113	11 Oct 2021	0990_OTH113_211011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	<0.01	0.09	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	0.17
OTH113	20 Oct 2022	0990_OTH113_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.15	<0.02	<0.02	<0.05	<0.02	<0.02	0.25	0.25
OTH113	18 Sep 2023	0990_QC201_230918	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	<0.01	<0.01	0.08	<0.02	0.011	<0.02	<0.02	<0.01	0.23	0.20
OTH113	18 Sep 2023	0990_OTH113_230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	0.19
OTH113	18 Sep 2023	0990_QC101_230918	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	0.19
OTH114	11 Oct 2017	0990_RN033019_171011	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.1	<0.01	<0.01	0.14	<0.01	0.01	<0.01	<0.01	<0.01	0.27	0.24
OTH114	11 Oct 2017	0990_RN033019_171011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.11	<0.02	<0.02	<0.05	<0.02	<0.02	0.2	0.20
OTH114	02 Nov 2017	0990_RN033019_171102	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.1	<0.01	<0.01	0.16	<0.01	0.02	<0.01	<0.01	<0.01	0.3	0.26
OTH114	21 Jan 2019	0990_RN033019_190121	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.10
OTH114	02 Apr 2019	0990_RN033019_190402	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
OTH114	12 Jun 2019	0990_RN033019_190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.08	<0.01	<0.01	0.12	<0.01	0.02	<0.01	<0.01	<0.01	0.24	0.20
OTH114	31 Oct 2019	0990_RN033019_191031	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
OTH114	17 Feb 2020	0990_QC100_200217	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.01	0.16	<0.02	0.02	<0.05	<0.02	<0.02	0.3	0.28
OTH114	17 Feb 2020	0990_RN033019_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	<0.02	<0.01	0.15	<0.02	<0.02	<0.05	<0.02	<0.02	0.26	0.26
OTH114	17 Feb 2020	QC200_200217	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	0.091	<0.01	<0.01	0.12	<0.02	0.016	<0.02	<0.02	<0.01	-	0.21
OTH114	21 Apr 2020	0990_RN033019_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.15	<0.02	<0.01	0.18	<0.02	<0.02	<0.05	<0.02	<0.02	0.33	0.33
OTH114	22 Jul 2020	0990_RN033019_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.13	<0.02	<0.01	0.16	<0.02	0.02	<0.05	<0.02	<0.02	0.35	0.29
OTH114	16 Nov 2020	0990_QC100_201116	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.17	<0.02	<0.01	0.16	<0.02	0.02	<0.05	<0.02	<0.02	0.37	0.33
OTH114	16 Nov 2020	0990_QC200_201116	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.1	<0.01	<0.01	0.14	<0.02	0.015	<0.02	<0.02	<0.01	-	0.24
OTH114	16 Nov 2020	0990_RN033019_201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.16	<0.02	<0.01	0.17	<0.02	0.02	<0.05	<0.02	<0.02	0.35	0.33
OTH114	02 Feb 2021	0990_RN033019_210202	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.22	<0.02	<0.01	0.34	<0.02	0.04	<0.05	<0.02	<0.02	0.66	0.56
OTH114	22 Apr 2021	0990_RN033019_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.13
OTH114	06 Jul 2021	0990_RN033019_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	<0.01	0.13	<0.02	<0.02	<0.05	<0.02	<0.02	0.21	0.21
OTH114	10 Oct 2021	0990_OTH114_211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.01	0.19	<0.02	<0.02	<0.05	<0.02	<0.02	0.31	0.31
OTH114	10 Oct 2021	0990_QC103_211010	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.01	0.16	<0.02	<0.02	<0.05	<0.02	<0.02	0.28	0.28
OTH114	10 Oct 2021	0990_QC203_211010	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	0.1	<0.01	<0.01	0.14	<0.02	0.012	<0.02	<0.02	<0.01	-	0.24
OTH114	15 Mar 2022	0990_OTH114_220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.15	<0.02	<0.02	<0.05	<0.02	<0.02	0.25	0.25
OTH114	20 Oct 2022	0990_OTH114_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.15	<0.02	<0.01	0.22	<0.02	0.03	<0.05	<0.02	<0.02	0.42	0.37
OTH114	15 Mar 2023	0990_OTH114_230316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.18	<0.02	0.01	0.3	<0.02	0.03	<0.05	<0.02	<0.02	0.56	0.48
OTH114	18 Sep 2023	0990_OTH114_230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	<0.02	<0.01	0.19	<0.02	0.02	<0.05	<0.02	<0.02	0.32	0.3
OTH114	12 Mar 2024	0990_OTH114_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.14	<0.02	<0.02	<0.05	<0.02	<0.02	0.23	0.23
OTH115	23 Apr 2020	0990_RN7807_2004223	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.01	0.15	<0.02	<0.02	<0.05	<0.02	<0.02	0.29	0.27
OTH115	08 Oct 2021	0990_OTH115_211008	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.01	0.13	<0.02	0.02	<0.05	<0.02	<0.02	0.27	0.25
OTH115	20 Oct 2022	0990_OTH115_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	<0.02	<0.01	0.15	<0.02	<0.02	<0.05	<0.02	<0.02	0.26	0.26

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
OTH115	18 Sep 2023	0990_OTH115_230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.13	<0.02	<0.02	<0.05	<0.02	<0.02	0.22	0.22
OTH116	24 Apr 2020	0990_RN041581_200424	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.09	<0.02	<0.02	<0.02	<0.02	0.03	0.08	0.45	<0.02	0.02	0.63	<0.02	0.08	<0.05	<0.02	<0.02	1.38	1.08
OTH116	10 Oct 2021	0990_OTH116_211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	<0.02	0.02	0.07	0.43	<0.02	0.02	0.63	<0.02	0.08	<0.05	<0.02	<0.02	1.31	1.06
OTH116	25 Sep 2023	0990_OTH116_230925	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.07	<0.02	<0.02	<0.02	<0.02	0.03	0.06	0.44	<0.02	0.02	0.67	<0.02	0.09	<0.05	<0.02	<0.02	1.38	1.11
OTH117	30 Nov 2021	0990_OTH117_211130	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
OTH117	30 Nov 2021	0990_QC101_211130	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	30 Nov 2021	0990_QC201_211130	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
OTH117	11 Jan 2022	0990_OTH117_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
OTH117	16 Feb 2022	0990_OTH117_220216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	16 Mar 2022	0990_OTH117_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	28 Apr 2022	0990_OTH117_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
OTH117	01 Sep 2022	0990_OTH117_220901	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	17 Nov 2022	0990_OTH117_221117	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	15 Dec 2022	0990_OTH117_221215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	18 Jan 2023	0990_OTH117_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	15 Feb 2023	0990_OTH117_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	15 Mar 2023	0990_OTH117_230316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
OTH117	19 Apr 2023	0990_OTH117_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	19 Apr 2023	0990_QC221_230419	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
OTH117	19 Apr 2023	0990_QC121_230419	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	24 Aug 2023	0990_OTH117_230824	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	14 Nov 2023	0990_OTH117_231114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	13 Dec 2023	0990_OTH117_231213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH117	13 Feb 2024	0990_OTH117_240213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
OTH117	12 Mar 2024	0990_OTH117_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
OTH117	10 Apr 2024	0990_OTH117_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	01 Dec 2021	0990_OTH118_211201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	11 Jan 2022	0990_OTH118_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	17 Feb 2022	0990_OTH118_220217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	16 Mar 2022	0990_OTH118_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	28 Apr 2022	0990_OTH118_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	31 Aug 2022	0990_OTH118_220831	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	01 Sep 2022	0990_OTH118_220901	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	16 Nov 2022	0990_OTH118_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	14 Dec 2022	0990_OTH118_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	18 Jan 2023	0990_OTH118_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	15 Mar 2023	0990_OTH118_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	19 Apr 2023	0990_OTH118_230418	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
OTH118	21 Jun 2023	0990_OTH118_230621	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	24 Aug 2023	0990_OTH118_230824	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	13 Nov 2023	0990_OTH118_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	12 Dec 2023	0990_OTH118_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	12 Dec 2023	0990_QC100_231212	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	12 Dec 2023	0990_QC200_231212	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
OTH118	16 Jan 2024	0990_OTH118_240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	16 Jan 2024	0990_QC101_240116	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	16 Jan 2024	0990_QC201_240116	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
OTH118	14 Feb 2024	0990_OTH118_240214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
OTH118	13 Mar 2024	0990_OTH118_240313	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH118	10 Apr 2024	0990_OTH118_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	01 Dec 2021	0990_OTH119_211201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	11 Jan 2022	0990_OTH119_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	17 Feb 2022	0990_OTH119_220217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	17 Feb 2022	0990_QC101_220217	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	15 Mar 2022	0990_OTH119_220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	28 Apr 2022	0990_OTH119_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	16 Nov 2022	0990_OTH119_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																								19	0.00023							
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																								0.56								0.07
PFAS NEMP 2020 Recreational Water																								10								2
Location Code	**Date**	**Field ID**	**Sample Type**																													
OTH119	14 Dec 2022	0990_OTH119_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	18 Jan 2023	0990_OTH119_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	15 Feb 2023	0990_OTH119_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	15 Mar 2023	0990_OTH119_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	19 Apr 2023	0990_OTH119_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	13 Nov 2023	0990_OTH119_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	13 Dec 2023	0990_OTH119_231213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	15 Jan 2024	0990_OTH119_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH119	13 Feb 2024	0990_OTH119_240212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.08	<0.02	<0.02	<0.05	<0.02	<0.02	0.12	0.12
OTH119	12 Mar 2024	0990_OTH119_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.01
OTH119	12 Mar 2024	0990_QC101_240312	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.02
OTH119	12 Mar 2024	0990_QC201_240312	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
OTH119	10 Apr 2024	0990_QC200_240410	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.022	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	0.022	<0.01
OTH119	10 Apr 2024	0990_OTH119_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	0.02	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.03
OTH119	10 Apr 2024	0990_QC100_240410	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	0.03	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.02
OTH120	20 Oct 2022	0990_OTH120_221024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH120	15 Mar 2023	0990_OTH120_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH120	18 Sep 2023	0990_QC200_230918	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
OTH120	18 Sep 2023	0990_OTH120_230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH120	18 Sep 2023	0990_QC100_230918	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH122	29 Aug 2017	0990_RN030662_170829	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.26	<0.01	<0.01	0.3	<0.01	0.03	<0.01	<0.01	<0.01	0.65	0.56
OTH122	18 Oct 2017	0990_RN030662_171018	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	0.22	<0.01	0.01	0.35	0.01	0.05	<0.01	<0.01	0.73	0.57
OTH122	14 Feb 2018	0990_030662_180214	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	0.23	<0.01	<0.01	0.4	<0.01	0.04	<0.01	<0.01	0.76	0.63
OTH122	20 Oct 2022	0990_RN030662_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.06	0.39	<0.02	0.02	0.5	<0.02	0.08	<0.05	<0.02	1.15	0.89
OTH123	19 Jul 2017	0990_RN033342_170719	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.07	0.43	<0.01	0.02	0.8	0.02	0.07	<0.01	<0.01	1.51	1.23
OTH123	20 Oct 2022	0990_OTH123_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.08	<0.02	<0.01	0.11	<0.02	<0.02	<0.05	<0.02	<0.02	0.21	0.19
OTH130	10 Apr 2024	0990_OTH130_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.15	<0.02	<0.02	<0.05	<0.02	<0.02	0.25	0.25
OTH131	10 Apr 2024	0990_OTH131_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.34	<0.02	0.02	0.64	<0.02	0.06	<0.05	<0.02	<0.02	1.21	0.98
POT111	12 Oct 2017	0990_PB077_171012	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT111	12 Oct 2017	0990_QCPB314_171012	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT111	21 Apr 2020	0990_MW498_2004	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT111	22 Apr 2021	0990_POT111_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT111	11 Oct 2021	0990_POT111_211011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT111	20 Oct 2022	0990_POT111_221020	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT111	18 Sep 2023	0990_POT111_230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT112	27 Nov 2017	0990_PB141_171127	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.05	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
POT112	21 Jan 2019	0990_PB141_190121	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
POT112	21 Jan 2019	0990_QCMW887_190121	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT112	27 Mar 2019	0990_PB141_190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
POT112	27 Mar 2019	0990_QCMW896_190327	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
POT112	27 Mar 2019	0990_QCMW897_190327	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
POT112	12 Jun 2019	0990_PB141_190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
POT112	30 Oct 2019	0990_MW555_191030	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
POT112	17 Feb 2020	MW555_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT112	21 Apr 2020	0990_MW555_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT112	22 Jul 2020	0990_QC200_200720	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.023	<0.01	<0.01	0.025	<0.02	<0.01	<0.02	<0.02	<0.01	-	0.05
POT112	24 Jul 2020	0990_MW555_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT112	24 Jul 2020	0990_QC100_200720	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	10 Dec 2020	0990_MW555_201210	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT112	10 Dec 2020	0990_QC107_201210	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT112	10 Dec 2020	0990_QC207_201210	Inter-lab Duplicate	0.012	<0.01	<0.01	<0.01	<0.02	0.019	<0.05	<0.01	<0.02	0.011	<0.05	<0.05	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	<0.01	0.017	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
POT112	01 Feb 2021	0990_MW555_210201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	22 Apr 2021	0990_POT112_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT112	06 Jul 2021	0990_POT112_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT112	30 Nov 2021	0990_POT112_211130	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	11 Jan 2022	0990_POT112_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	16 Feb 2022	0990_POT112_220216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
POT112	15 Mar 2022	0990_POT112_220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT112	28 Apr 2022	0990_POT112_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	31 Aug 2022	0990_POT112_220831	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	16 Nov 2022	0990_POT112_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	14 Dec 2022	0990_POT112_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT112	18 Jan 2023	0990_POT112_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT112	18 Jan 2023	0990_QC100_230118	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT112	18 Jan 2023	0990_QC200_230118	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	0.038	<0.02	<0.01	<0.02	<0.02	<0.01	0.051	0.05
POT112	15 Feb 2023	0990_POT112_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT112	15 Mar 2023	0990_POT112_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT112	19 Apr 2023	0990_POT112_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
POT112	21 Jun 2023	0990_POT112_230621	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	23 Aug 2023	0990_POT112_230823	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
POT112	13 Nov 2023	0990_POT112_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT112	13 Dec 2023	0990_POT112_231213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT112	15 Jan 2024	0990_POT112_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.04	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	0.14
POT112	13 Feb 2024	0990_QC130_240213	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
POT112	13 Feb 2024	0990_QC230_240213	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.027	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	0.03	0.03
POT112	13 Feb 2024	0990_POT112_240213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
POT112	12 Mar 2024	0990_POT112_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT112	10 Apr 2024	0990_POT112_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT113	22 Dec 2017	0990_PB193_171222	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
POT113	21 Jan 2019	0990_PB193-190121	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.06
POT113	02 Apr 2019	0990_PB193_190402	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.1	0.22	<0.01	0.02	0.21	0.03	0.05	<0.01	<0.01	<0.01	0.68	0.43
POT113	24 Apr 2019	0990_PB193_190424	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.06
POT113	24 Apr 2019	0990_QCMW906_190424	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.06
POT113	12 Jun 2019	0990_PB193_190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
POT113	12 Jun 2019	0990_QCMW910_190612	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
POT113	12 Jun 2019	0990_QCMW911_190612	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
POT113	30 Oct 2019	0990_MW605_191030	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT113	17 Feb 2020	MW605_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT113	20 Apr 2020	0990_MW605_200420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT113	24 Jul 2020	0990_MW605_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT113	19 Nov 2020	0990_MW605_201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT113	01 Feb 2021	0990_MW605_210201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.13	<0.02	<0.01	0.17	<0.02	0.03	<0.05	<0.02	<0.02	0.42	0.30
POT113	22 Apr 2021	0990_POT113_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT113	15 Jun 2021	0990_POT113_210615	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.15	<0.02	0.01	0.15	<0.02	0.03	<0.05	<0.02	<0.02	0.43	0.30
POT113	06 Jul 2021	0990_POT113_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT113	11 Oct 2021	0990_POT113_211011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT113	30 Nov 2021	0990_POT113_211130	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT113	10 Jan 2022	0990_POT113_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.08	<0.02	<0.01	0.09	<0.02	<0.02	<0.05	<0.02	<0.02	0.23	0.17
POT113	16 Feb 2022	0990_POT113_220216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	0.16	<0.02	0.01	0.21	<0.02	0.03	<0.05	<0.02	<0.02	0.53	0.37
POT113	16 Feb 2022	0990_QC100_220216	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	0.17	<0.02	0.01	0.2	<0.02	0.03	<0.05	<0.02	<0.02	0.52	0.37
POT113	16 Feb 2022	0990_QC200_220216	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.025	<0.01	<0.01	<0.01	<0.01	<0.01	0.039	0.15	<0.01	<0.01	0.15	<0.02	0.028	<0.02	<0.02	<0.01	-	0.30
POT113	15 Mar 2022	0990_POT113_220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	0.22	0.41	<0.02	0.03	0.5	0.03	0.07	<0.05	<0.02	<0.02	1.36	0.91
POT113	28 Apr 2022	0990_POT113_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	0.23	<0.02	0.02	0.21	0.02	0.04	<0.05	<0.02	<0.02	0.67	0.44
POT113	31 Aug 2022	0990_POT113_220831	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.08	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.18	0.15
POT113	31 Aug 2022	0990_QC100_220831	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.08	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	0.14
POT113	31 Aug 2022	0990_QC200_220831	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	0.053	<0.01	<0.01	0.039	<0.02	<0.01	<0.02	<0.02	<0.01	-	0.09
POT113	16 Nov 2022	0990_POT113_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT113	14 Dec 2022	0990_POT113_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT113	18 Jan 2023	0990_POT113_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	0.25	<0.02	0.02	0.22	0.02	0.06	<0.05	<0.02	<0.02	0.72	0.47
POT113	15 Feb 2023	0990_POT113_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	0.21	<0.02	0.01	0.18	<0.02	0.05	<0.05	<0.02	<0.02	0.58	0.39
POT113	15 Mar 2023	0990_POT113_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.18	<0.02	0.01	0.26	<0.02	0.03	<0.05	<0.02	<0.02	0.55	0.44
POT113	15 Mar 2023	0990_QC101_230315	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.19	<0.02	0.01	0.3	<0.02	0.03	<0.05	<0.02	<0.02	0.49	0.62
POT113	15 Mar 2023	0990_QC201_230315	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.019	<0.02	<0.02	<0.02	<0.02	<0.02	0.041	0.15	<0.02	<0.01	0.18	<0.02	0.021	<0.05	<0.02	<0.02	0.33	0.41
POT113	19 Apr 2023	0990_POT113_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.11	<0.02	<0.02	<0.02	0.02	0.03	0.23	0.67	<0.02	0.05	0.88	0.04	0.12	<0.05	<0.02	<0.02	2.15	1.55

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
POT113	21 Jun 2023	0990_POT113_230621	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.07	<0.02	<0.01	0.08	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	0.15
POT113	23 Aug 2023	0990_POT113_230823	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT113	13 Nov 2023	0990_POT113_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT113	13 Nov 2023	0990_QC100_231113	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT113	13 Nov 2023	0990_QC200_231113	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.05	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.023	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	0.023	0.023
POT113	13 Dec 2023	0990_POT113_231213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.07	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	0.14
POT113	13 Dec 2023	0990_QC102_231213	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.07	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	0.14
POT113	13 Dec 2023	0990_QC202_231213	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	0.056	<0.01	<0.01	0.043	<0.02	0.011	<0.02	<0.02	<0.01	0.136	0.10
POT113	15 Jan 2024	0990_QC100_240115	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	0.22	<0.02	0.01	0.17	<0.02	0.05	<0.05	<0.02	<0.02	0.55	0.39
POT113	15 Jan 2024	0990_POT113_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	0.24	<0.02	0.01	0.19	<0.02	0.05	<0.05	<0.02	<0.02	0.61	0.43
POT113	15 Jan 2024	0990_QC200_240115	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	0.028	<0.01	<0.01	<0.01	<0.01	<0.01	0.058	0.17	<0.01	<0.01	0.14	<0.02	0.029	<0.02	<0.02	<0.01	0.425	0.31
POT113	13 Feb 2024	0990_POT113_240213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.15	<0.02	0.01	0.21	<0.02	0.03	<0.05	<0.02	<0.02	0.49	0.36
POT113	13 Feb 2024	0990_QC131_240213	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.16	<0.02	0.01	0.22	<0.02	0.03	<0.05	<0.02	<0.02	0.51	0.38
POT113	13 Feb 2024	0990_QC231_240213	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	0.023	0.09	<0.01	<0.01	0.13	<0.02	0.012	<0.02	<0.02	<0.01	0.268	0.22
POT113	12 Mar 2024	0990_POT113_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.09	<0.02	<0.01	0.14	<0.02	<0.02	<0.05	<0.02	<0.02	0.25	0.23
POT113	12 Mar 2024	0990_QC100_240312	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.09
POT113	10 Apr 2024	0990_POT113_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.11
POT114	22 Mar 2018	0990_PB232_180322	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.09
POT114	30 Apr 2018	0990_PB232_180430	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
POT114	30 Apr 2018	0990_QCMW816_180430	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT114	30 Apr 2018	0990_QCMW817_180430	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	27 Mar 2019	0990_PB232_190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT114	12 Jun 2019	0990_PB232_190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT114	30 Oct 2019	0990_MW642_191030	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	17 Feb 2020	MW642_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	21 Apr 2020	0990_MW642_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	24 Jul 2020	0990_MW642_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	18 Nov 2020	0990_MW642_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	01 Feb 2021	0990_MW642_210201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	01 Feb 2021	0990_QC100_210201	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	01 Feb 2021	0990_QC200_210201	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
POT114	22 Apr 2021	0990_POT114_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.01	0.11	<0.02	<0.02	<0.05	<0.02	<0.02	0.18	0.18
POT114	06 Jun 2021	0990_QC200_210606	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
POT114	15 Jun 2021	0990_POT114_210615	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
POT114	15 Jun 2021	0990_QC100_210615	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
POT114	15 Jun 2021	0990_QC200_210615	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
POT114	15 Jun 2021	0990_QC101_210615	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT114	15 Jun 2021	0990_QC200_A_210615	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	0.025	<0.02	<0.01	<0.02	<0.02	<0.01	-	0.04
POT114	06 Jul 2021	0990_POT114_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT114	06 Jul 2021	0990_QC100_210606	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT114	11 Oct 2021	0990_POT114_211011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	30 Nov 2021	0990_POT114_211130	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT114	30 Nov 2021	0990_QC100_211130	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
POT114	30 Nov 2021	0990_QC200_211130	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	-	<0.02
POT114	11 Jan 2022	0990_POT114_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	17 Feb 2022	0990_POT114_220217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	15 Mar 2022	0990_POT114_220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	28 Apr 2022	0990_POT114_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	01 Sep 2022	0990_POT114_220901	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	16 Nov 2022	0990_POT114_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	15 Feb 2023	0990_POT114_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	15 Mar 2023	0990_POT114_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	18 Apr 2023	0990_POT114_230418	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	23 Aug 2023	0990_POT114_230823	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	13 Nov 2023	0990_POT114_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	12 Dec 2023	0990_POT114_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT114	14 Feb 2024	0990_POT114_240214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																											
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
POT114	13 Mar 2024	0990_POT114_240313	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT114	11 Apr 2024	0990_POT114_240411	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT115	15 Jun 2021	0990_POT115_210615	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT116	15 Jun 2021	0990_POT116_210615	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.09
POT117	15 Jun 2021	0990_POT117_210615	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	0.10
POT118	15 Jun 2021	0990_POT118_210615	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.07	<0.02	<0.01	0.08	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	0.15
POT119	11 Aug 2017	0990_PB016_170811	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT119	23 Jan 2019	0990_PB016_190123	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT119	21 Apr 2020	0990_MW445_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT119	22 Apr 2021	0990_MW445_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT120	26 Oct 2017	0990_PB092-1_171026	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
POT120	21 Jan 2019	0990_PB092_190121	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
POT120	27 Mar 2019	0990_PB092_190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
POT120	12 Jun 2019	0990_PB092_190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
POT120	04 Nov 2019	0990_MW512_191030	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	17 Feb 2020	MW512_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT120	21 Apr 2020	0990_MW512_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT120	24 Jul 2020	0990_MW512_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	16 Nov 2020	0990_MW512_201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT120	01 Feb 2021	0990_MW512_210201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT120	22 Apr 2021	0990_MW512_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT120	22 Apr 2021	0990_QC102_210422	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.09	<0.02	<0.02	<0.05	<0.02	<0.02	0.14	0.14
POT120	22 Apr 2021	0990_QC202_210422	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.045	<0.01	<0.01	0.092	<0.02	<0.01	<0.02	<0.02	<0.01	0.14	0.14
POT120	06 Jul 2021	0990_MW512_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	11 Oct 2021	0990_POT120_211011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT120	30 Nov 2021	0990_POT120_211130	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	11 Jan 2022	0990_POT120_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	11 Jan 2022	0990_QC100_220111	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	11 Jan 2022	0990_QC200_220111	Inter-lab Duplicate	<0.02	<0.01	0.033	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	0.014	0.014
POT120	16 Feb 2022	0990_POT120_220216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	15 Mar 2022	0990_POT120_220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	28 Apr 2022	0990_POT120_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	31 Aug 2022	0990_POT120_220831	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	16 Nov 2022	0990_POT120_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	14 Dec 2022	0990_POT120_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	18 Jan 2023	0990_POT120_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	18 Jan 2023	0990_QC101_230118	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	18 Jan 2023	0990_QC201_230118	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	0.053	<0.02	<0.01	<0.02	<0.02	<0.01	0.07	0.07
POT120	15 Feb 2023	0990_POT120_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	15 Feb 2023	0990_QC100_230315	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	15 Feb 2023	0990_QC200_230215	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	<0.01	0.024	<0.02	<0.01	<0.02	<0.02	<0.01	0.04	0.04
POT120	15 Mar 2023	0990_POT120_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	13 Nov 2023	0990_POT120_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	12 Dec 2023	0990_POT120_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	16 Jan 2024	0990_POT120_240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	16 Jan 2024	0990_QC102_240116	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	16 Jan 2024	0990_QC202_240116	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	0.014	0.01
POT120	14 Feb 2024	0990_POT120_240214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	13 Mar 2024	0990_POT120_240313	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	10 Apr 2024	0990_POT120_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT120	19 Apr 2023	0990_POT120_230418	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT120	26 Jul 2023	0990_POT120_230726	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT120	19 Apr 2023	0990_QC120_230418	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
POT120	18 Apr 2023	0990_QC220_230418	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	0.017	0.017
POT120	22 Aug 2023	0990_POT120_230822	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT121	21 Dec 2017	0990_PB187_171221	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
POT121	21 Jan 2019	0990_PB187_190121	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023						
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																									0.56							0.07
PFAS NEMP 2020 Recreational Water																									10							2
Location Code	**Date**	**Field ID**	**Sample Type**																													
POT121	21 Jan 2019	0990_QCMW886_190121	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
POT121	27 Mar 2019	0990_PB187_190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.02
POT121	12 Jun 2019	0990_PB187_190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT121	30 Oct 2019	0990_MW599_191030	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT121	17 Feb 2020	MW599_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT121	21 Apr 2020	0990_MW599_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT121	24 Jul 2020	0990_MW599_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT121	16 Nov 2020	0990_MW599_201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT121	02 Feb 2021	0990_MW599_210202	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT121	22 Apr 2021	0990_MW599_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
POT121	15 Jun 2021	0990_MW599_210615	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT121	06 Jul 2021	0990_MW599_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT121	11 Oct 2021	0990_POT121_211011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT121	16 Feb 2023	0990_POT121_230216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT121	16 Mar 2023	0990_POT121_230316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
POT121	19 Apr 2023	0990_POT121_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT121	23 Aug 2023	0990_POT121_230823	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
POT121	14 Nov 2023	0990_POT121_231114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT121	12 Dec 2023	0990_POT121_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT121	15 Jan 2024	0990_POT121_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT121	13 Feb 2024	0990_POT121_240213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT121	12 Mar 2024	0990_POT121_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT121	10 Apr 2024	0990_POT121_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
POT122	01 Feb 2018	0990_PB202_180201	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.04	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.09
POT122	10 Apr 2019	0990_PB202_190410	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
POT122	19 Jun 2019	0990_PB202_190619	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.08
POT122	19 Jun 2019	0990_QCMW913_190619	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT122	30 Oct 2019	0990_MW614_191030	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT122	30 Oct 2019	0990_QC201_191030	Inter-lab Duplicate	-	<0.0005	-	<0.0005	<0.0025	<0.0025	<0.0025	<0.002	<0.0025	<0.0025	<0.0025	0.0017	0.004	<0.001	<0.001	<0.001	<0.0005	0.001	0.0012	0.0053	0.028	<0.001	<0.0005	0.021	0.0023	0.005	<0.001	<0.001	<0.001	-	0.05
POT122	17 Feb 2020	MW614_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT122	21 Apr 2020	0990_MW614_200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
POT122	21 Apr 2020	0990_QC102_200421	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.09
POT122	21 Apr 2020	0990_QC202_200421	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.041	<0.01	<0.01	0.039	<0.02	<0.01	<0.02	<0.02	<0.01	-	0.08
POT122	24 Jul 2020	0990_MW614_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.09
POT122	18 Nov 2020	0990_MW614_201118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
POT122	02 Feb 2021	0990_MW614_210202	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.07	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	0.17
POT122	22 Apr 2021	0990_MW614_210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	0.10
POT122	22 Apr 2021	0990_QC103_210422	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	0.10
POT122	22 Apr 2021	0990_QC203_210422	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.053	<0.01	<0.01	0.036	<0.02	0.01	<0.02	<0.02	<0.01	-	0.09
POT122	06 Jul 2021	0990_MW614_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.06	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.15	0.11
POT122	11 Oct 2021	0990_POT122_211011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.11
POT122	30 Nov 2021	0990_POT122_211130	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	0.10
POT122	11 Jan 2022	0990_POT122_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.06	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.14	0.12
POT122	11 Jan 2022	0990_QC101_220111	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.11
POT123	21 Dec 2017	0990_PB185_171221	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
POT123	11 Oct 2021	0990_POT123_211011	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	01 Dec 2021	0990_POT124_211201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT124	12 Jan 2022	0990_POT124_220112	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT124	17 Feb 2022	0999_POT124_220217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT124	16 Mar 2022	0990_POT124_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT124	28 Apr 2022	0990_POT124_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT124	01 Sep 2022	0990_POT124_220901	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	17 Nov 2022	0990_POT124_221117	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	15 Dec 2022	0990_POT124_221215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	18 Jan 2023	0990_POT124_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	15 Feb 2023	0990_POT124_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT124	15 Mar 2023	0990_POT124_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																											
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
POT124	18 Apr 2023	0990_POT124_230418	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
POT124	21 Jun 2023	0990_POT124_230621	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT124	21 Jun 2023	0990_QC100_230621	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT124	21 Jun 2023	0990_QC200_230621	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
POT124	24 Aug 2023	0990_POT124_230824	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
POT124	13 Nov 2023	0990_POT124_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	12 Dec 2023	0990_POT124_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	12 Dec 2023	0990_QC101_231212	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	12 Dec 2023	0990_QC201_231212	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
POT124	16 Jan 2024	0990_POT124_240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	14 Feb 2024	0990_POT124_240214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	13 Mar 2024	0990_POT124_240313	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT124	11 Apr 2024	0990_POT124_240411	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT125	01 Dec 2021	0990_POT125_211201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	12 Jan 2022	0990_POT125_220112	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	17 Feb 2022	0990_POT125_220217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	16 Mar 2022	0990_POT125_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	16 Mar 2022	0990_POT125_TANK_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	28 Apr 2022	0990_POT125_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	28 Apr 2022	0990_QC101_220428	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	31 Aug 2022	0990_POT125_220831	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	16 Nov 2022	0990_POT125_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	14 Dec 2022	0990_POT125_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	14 Dec 2022	0990_QC100_221214	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	18 Jan 2023	0990_POT125_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	15 Feb 2023	0990_POT125_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	15 Mar 2023	0990_POT125_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	15 Mar 2023	0990_QC100_230315	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	15 Mar 2023	0990_QC200_230315	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	19 Apr 2023	0990_POT125_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	24 Aug 2023	0990_QC203_230824	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
POT125	24 Aug 2023	0990_POT125_230824	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	24 Aug 2023	0990_QC103_230824	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	13 Nov 2023	0990_POT125_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	12 Dec 2023	0990_POT125_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	15 Jan 2024	0990_POT125_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	13 Feb 2024	0990_POT125_240213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	12 Mar 2024	0990_POT125_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT125	10 Apr 2024	0990_POT125_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	01 Dec 2021	0990_POT126_211201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	12 Jan 2022	0990_POT126_220112	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	17 Feb 2022	0990_POT126_220217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	16 Mar 2022	0990_POT126_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	28 Apr 2022	0990_POT126_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	31 Aug 2022	0990_POT126_220831	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	16 Nov 2022	0990_POT126_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	14 Dec 2022	0990_POT126_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	18 Jan 2023	0990_POT126_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	15 Feb 2023	0990_POT126_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	15 Mar 2023	0990_POT126_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	19 Apr 2023	0990_POT126_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	13 Nov 2023	0990_POT126_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	10 Apr 2024	0990_POT126_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT126	22 Aug 2023	0990_POT126_230822	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	01 Dec 2021	0990_POT127_211201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	11 Jan 2022	0990_POT127_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	17 Feb 2022	0999_POT127_220217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																												
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																
PFAS NEMP 2020 Freshwater 99% Species Protection																								19	0.00023							
Human Health Receptors																																
PFAS NEMP 2020 Drinking Water																								0.56								0.07
PFAS NEMP 2020 Recreational Water																								10								2
Location Code	**Date**	**Field ID**	**Sample Type**																													
POT127	16 Mar 2022	0990_POT127_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	16 Mar 2022	0990_QC101_220316	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	28 Apr 2022	0990_POT127_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	01 Sep 2022	0990_POT127_220901	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	01 Sep 2022	0990_QC101_220901	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	01 Sep 2022	0990_QC201_220901	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01
POT127	16 Nov 2022	0990_POT127_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	16 Nov 2022	0990_QC103_221116	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	14 Dec 2022	0990_POT127_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	18 Jan 2023	0990_POT127_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	15 Feb 2023	0990_POT127_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	15 Mar 2023	0990_POT127_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	18 Apr 2023	0990_POT127_230418	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	21 Jun 2023	0990_POT127_230621	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	24 Aug 2023	0990_POT127_230824	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	13 Nov 2023	0990_POT127_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	13 Nov 2023	0990_QC101_231113	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	13 Nov 2023	0990_QC201_231113	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.05	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01
POT127	12 Dec 2023	0990_POT127_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	16 Jan 2024	0990_POT127_240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	14 Feb 2024	0990_POT127_240214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	13 Mar 2024	0990_POT127_240313	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT127	10 Apr 2024	0990_POT127_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	01 Dec 2021	0990_POT128_211201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	11 Jan 2022	0990_POT128_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	17 Feb 2022	0990_POT128_220217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	15 Mar 2022	0990_POT128_220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	28 Apr 2022	0990_POT128_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	31 Aug 2022	0990_POT128_220831	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	16 Nov 2022	0990_POT128_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	14 Dec 2022	0990_POT128_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
POT128	18 Jan 2023	0990_POT128_230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
POT128	15 Feb 2023	0990_POT128_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	15 Feb 2023	0990_QC201_230215	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02
POT128	16 Feb 2023	0990_QC101_230215	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	15 Mar 2023	0990_POT128_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	19 Apr 2023	0990_POT128_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	13 Nov 2023	0990_POT128_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	13 Dec 2023	0990_POT128_231213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	15 Jan 2024	0990_POT128_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	13 Feb 2024	0990_POT128_240212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	12 Mar 2024	0990_POT128_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	10 Apr 2024	0990_POT128_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT128	22 Aug 2023	0990_POT128_230823	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	11 Jan 2022	0990_POT129_220111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
POT129	16 Feb 2022	0990_POT129_220216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	15 Mar 2022	0990_POT129_220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	28 Apr 2022	0990_POT129_220428	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	31 Aug 2022	0990_POT129_220831	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	16 Nov 2022	0990_POT129_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	14 Dec 2022	0990_POT129_221214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	15 Feb 2023	0990_POT129_230215	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	15 Mar 2023	0990_POT129_230315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	19 Apr 2023	0990_POT129_230419	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
POT129	13 Nov 2023	0990_POT129_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	13 Dec 2023	0990_POT129_231213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT129	15 Jan 2024	0990_POT129_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01

Table T2
Current and Historical Groundwater Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T2 - Current and Historical Groundwater Analytical Results

				PFAS (Full Suite)																											
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR				0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99% Species Protection																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
POT129	13 Feb 2024	0990_POT129_240213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
POT129	12 Mar 2024	0990_POT129_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
POT129	10 Apr 2024	0990_POT129_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
POT129	22 Aug 2023	0990_POT129_230822	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT130	16 Feb 2022	0990_POT130_220216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT130	14 Nov 2023	0990_POT130_231114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT130	13 Dec 2023	0990_POT130_231213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT130	16 Jan 2024	0990_POT130_240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT130	14 Feb 2024	0990_POT130_240214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT130	13 Mar 2024	0990_POT130_240313	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT130	11 Apr 2024	0990_POT130_240411	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT130	08 Aug 2023	0990_POT130_230808	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT131	21 Jun 2023	0990_POT131_230621	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT131	23 Aug 2023	0990_POT131_230823	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT131	13 Nov 2023	0990_POT131_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT131	12 Dec 2023	0990_POT131_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT131	15 Jan 2024	0990_POT131_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT131	13 Feb 2024	0990_POT131_240213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT131	12 Mar 2024	0990_POT131_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT131	10 Apr 2024	0990_POT131_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT198	22 Aug 2023	0990_POT198_230822	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT198	14 Nov 2023	0990_POT198_231114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT198	14 Nov 2023	0990_QC102_231114	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT198	14 Nov 2023	0990_QC202_231114	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.05	<0.02	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
POT198	12 Dec 2023	0990_POT198_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT198	16 Jan 2024	0990_POT198_240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT198	14 Feb 2024	0990_POT198_240214	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT198	13 Mar 2024	0990_POT198_240313	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT198	11 Apr 2024	0990_POT198_240411	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT201	22 Aug 2023	0990_POT201_230822	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT201	14 Nov 2023	0990_POT201_231114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT201	15 Jan 2024	0990_POT201_240115	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT201	13 Feb 2024	0990_POT201_240213	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT201	12 Mar 2024	0990_POT201_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT201	10 Apr 2024	0990_POT201_240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
POT201	12 Dec 2023	0990_POT201_231212	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01

Table T3
Current and Historical Surface Water Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T3 - Current and Historical Surface Water Field Results

Site	Location	Sampled Date	DO (Field)	Temperature (Field)	Redox Potential	Redox Potential Corrected	Electrical Conductivity (field)	pH (Field)
			mg/L	°C	mV	mV	µS/cm	pH Units
0990	OTH008	18/02/2020	4.56	29.3	422.8	622.8	2824	7.01
0990	OTH008	20/07/2020	6.61	26.6	342.8	542.8	2621	7.09
0990	OTH008	16/11/2020	3.66	32.3	357	557	3479	7.48
0990	OTH008	2/02/2021	76.6	30.4	301.6	501.6	2358	7.83
0990	OTH008	21/04/2021	3.15	30.3	302.3	502.3	1810	8.04
0990	OTH008	6/07/2021	5.54	25.6	355.5	555.5	1664	7.36
0990	OTH008	10/10/2021	4.34	31	322.1	522.1	1962	7.05
0990	OTH008	20/12/2021	4.01	28.8	309.6	509.6	2197	7.14
990	OTH008	16/03/2022	5.43	31.1	-88.7	111.3	217.8	7.63
0990	OTH008	14/06/2022	8.9	22.3	466.9	666.9	2450	6.42
0990	OTH008	17/01/2023	4.34	31.5	-1.4	198.6	2013	6.88
0990	OTH008	3/04/2023	1.12	29.5	-	-	1937	6.92
0990	OTH008	24/07/2023	5.71	23.7	-	-	1829	6.7
0990	OTH008	18/09/2023	5.22	30.1	452.1	652.1	2090	7.79
0990	OTH008	16/01/2024	6.06	27.9	124.6	324.6	42.9	7.87
0990	SW016	31/10/2019	5.03	24.3	-123.8	76.2	665	-
0990	SW016	17/12/2020	1.67	28.5	-36.6	163.4	142	7.47
0990	SW016	21/04/2021	2.59	34.8	-167.3	32.7	593	8.12
0990	SW016	21/12/2021	2.34	26.5	-95	105	380.6	6.62
0990	SW016	14/11/2022	1.81	30.2	-131.8	68.2	171.2	7.53
0990	SW016	28/02/2023	3.35	27.3	-118.3	81.7	201.3	6.99
0990	SW016	13/11/2023	2.81	31.81	32.1	232.1	212.8	7.9
0990	SW016	12/03/2024	4.76	27.8	42.5	242.5	178.2	7.74
0990	SW021	17/12/2020	1.85	30.8	-65.8	134.2	152.9	7.75
0990	SW021	21/04/2021	3.8	28.6	-130.6	69.4	502	8.07
0990	SW021	20/12/2021	2.78	28.4	-112.1	87.9	126.1	7.38
0990	SW021	28/02/2023	4.27	26.8	-131.9	68.1	175.8	7.65
0990	SW021	14/11/2023	2.44	31.2	52.1	252.1	210.2	7.01
0990	SW021	12/03/2024	4.45	31	17.3	217.3	207.3	7.69
0990	SW049	21/12/2021	5.58	24.4	-91.5	108.5	51	7.42
0990	SW049	28/02/2023	4.61	30.5	-102.3	97.7	127.2	7.72
0990	SW049	14/11/2023	4.51	31.8	20.7	220.7	175.2	7.1
0990	SW049	12/03/2024	3.93	35.1	14.3	214.3	124.6	8.1
0990	SW100	30/10/2019	6.18	21.2	-148.2	51.8	36.2	-
0990	SW100	30/10/2019	1.91	31.4	-134	66	811	-
0990	SW100	16/11/2020	4.21	33.4	-19.1	180.9	801	7.6
0990	SW100	16/12/2020	4	28.5	-69	131	49.6	7.89
0990	SW100	22/04/2021	3.39	27.2	-141.9	58.1	134.6	7.99
0990	SW100	20/12/2021	3.85	30.3	-57.6	142.4	221.6	7.19
990	SW100	16/03/2022	4.15	27.9	-127.5	72.5	-10.2	7.47
0990	SW100	24/10/2022	1.91	31.2	-125	75	585	7.29
0990	SW100	29/03/2023	0.88	-	-	-	83.2	6.5
0990	SW100	18/09/2023	4.33	30.2	231.5	431.5	665	7.68
0990	SW100	12/03/2024	3.73	29.5	28.8	228.8	29.6	8
0990	SW108	31/10/2019	6.61	30.2	262.2	462.2	2843	-
0990	SW108	20/07/2020	4.96	26.7	8.9	208.9	446.9	6.93
0990	SW108	16/11/2020	1	31.5	-18	182	546	7.86
0990	SW108	1/02/2021	3.97	30.8	-61	139	37.1	8.67
0990	SW108	22/04/2021	3.39	30.3	-118.3	81.7	100	8.18
0990	SW108	6/07/2021	4.21	24.7	-99.6	100.4	248.3	7.29
0990	SW108	9/10/2021	3.43	34.6	-86.2	113.8	564	7.34
0990	SW108	20/12/2021	3.95	29.8	-55.1	144.9	107.1	7.56
0990	SW108	16/03/2022	4.4	32.3	-139	61	-14.1	7.46
0990	SW108	14/06/2022	5.44	25.3	11	211	419.4	7.14
0990	SW108	18/01/2023	5.13	28.8	-93.7	106.3	29.7	7.75
0990	SW108	3/04/2023	1.14	31.2	-	-	215.3	6.9
0990	SW108	24/07/2023	5.3	23.4	-	-	284.9	6.07
0990	SW108	18/09/2023	2.97	29.1	124.2	324.2	479.4	7.32
0990	SW108	16/01/2024	6.06	27.9	124.6	324.6	42.9	7.87
0990	SW108	11/04/2024	5.3	29.2	87.4	287.4	54	5.3
0990	SW108	19/06/2024	4.62	23.3	103	303	191.9	7.13
0990	SW110	16/11/2020	3.79	34.9	-42.4	157.6	118.4	7.76
0990	SW110	17/12/2020	4.77	28.2	-50.1	149.9	26.7	7.9
0990	SW110	22/04/2021	3.69	30.5	-115.1	84.9	58.1	8.02
0990	SW110	20/12/2021	3.85	29	-71.5	128.5	44.6	7.55
0990	SW110	24/10/2022	1.83	31.2	-144.2	55.8	114.8	7.15
990	SW110	16/03/2023	6.44	30.7	-170.7	29.3	-6.1	7.6
0990	SW110	29/03/2023	0.94	32.3	-	-	25.2	6.25
0990	SW110	18/09/2023	2.91	28.9	144.2	344.2	193.4	7.26
0990	SW110	11/03/2024	3.92	29.8	30.3	230.3	20.5	6.86
0990	SW140	20/12/2021	4.28	26.9	-108.5	91.5	36.3	7.59
0990	SW140	28/02/2023	4.37	30.9	-137	63	95	7.46
0990	SW140	14/11/2023	4.41	31.9	33.1	233.1	273.2	7.21
0990	SW140	11/03/2024	3	31.4	52.7	252.7	42.8	8.17
0990	SW151	31/10/2019	4.72	31.2	-68.3	131.7	589	-
0990	SW151	16/11/2020	4.01	34.1	-15.6	184.4	775	7.79
0990	SW151	16/12/2020	4.05	28.9	-74.5	125.5	78.2	8.26
0990	SW151	22/04/2021	3.48	30	-111.4	88.6	186.9	8.13
0990	SW153	21/07/2020	2.83	26.5	9.8	209.8	753	7.03
0990	SW153	16/11/2020	1.17	32.3	0.4	200.4	904	7.53
0990	SW153	1/02/2021	2.58	31.7	-17.9	182.1	851	7.88
0990	SW153	23/04/2021	1.83	29.9	-118.7	81.3	729	7.4
0990	SW153	6/07/2021	2.08	26.7	-134.2	65.8	735	7.43
0990	SW153	11/10/2021	2	33.8	-71.7	128.3	843	7.22
0990	SW153	20/12/2021	2.37	29.7	-7.3	192.7	846	6.63
990	SW153	16/03/2022	3.18	29.2	505	705	17.2	7.56

Table T3
Current and Historical Surface Water Field Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

Table T3 - Current and Historical Surface Water Field Results

Site	Location	Sampled Date	DO (Field)	Temperature (Field)	Redox Potential	Redox Potential Corrected	Electrical Conductivity (field)	pH (Field)
			mg/L	°C	mV	mV	µS/cm	pH Units
0990	SW153	14/06/2022	2.98	31.1	-101.2	98.8	803	6.97
0990	SW153	17/01/2023	1.75	32	-63.4	136.6	823	6.89
0990	SW153	3/04/2023	0.53	30.2	-	-	695.3	6.92
0990	SW153	24/07/2023	3.96	28	-	-	6.67	6.46
0990	SW153	18/09/2023	2.97	29.8	215.2	415.2	785	7.43
0990	SW153	10/04/2024	4.47	30.1	107.2	307.2	746	4.47
0990	SW153	19/06/2024	2.91	30.4	109.3	309.3	825	6.84
0990	SW161	30/10/2019	5.52	30.9	6.8	206.8	200.6	-
0990	SW161	17/11/2020	3.27	34.8	-89.7	110.3	111.9	8.39
0990	SW161	17/12/2020	4.1	28.4	-71.2	128.8	46.2	8.3
0990	SW161	23/04/2021	3.81	27.4	-166.4	33.6	41.2	9.13
0990	SW161	20/12/2021	4.02	29.8	-67.9	132.1	36.7	7.49
990	SW161	16/03/2022	4.35	31.1	-155.5	44.5	-42.4	7.44
0990	SW161	24/10/2022	1.96	31.4	-	-	44.4	7.94
0990	SW161	29/03/2023	0.64	32	-	-	63	6.587
0990	SW161	18/09/2023	4.02	30.9	97.6	297.6	85.4	7.84
0990	SW161	11/03/2024	2.87	30.5	33.1	233.1	37.7	6.92
0990	SW188	31/10/2019	3.87	30.7	-173.8	26.2	32.4	-
0990	SW188	17/12/2020	3.63	30	-77.4	122.6	120.9	8.5
0990	SW188	21/04/2021	5.63	31.1	-133.9	66.1	678	7.8
0990	SW188	21/12/2021	4.6	24.1	-105	95	45.3	7.34
0990	SW188	14/11/2022	1.92	31.2	-137.2	62.8	138.2	8.28
0990	SW188	28/02/2023	4.83	29.1	-80.2	119.8	73.8	8.16
0990	SW188	14/11/2023	2.77	31.7	41.2	241.2	209.2	7.79
0990	SW188	12/03/2024	3.67	33.9	35.4	235.4	343.3	7.7
0990	SW350	31/10/2019	4.59	29.4	-134.7	65.3	691	-
0990	SW350	17/12/2020	3.32	31.2	-50.4	149.6	193	8.09
0990	SW350	21/04/2021	2.88	28.5	-145.7	54.3	590	7.78
0990	SW350	21/12/2021	3.62	25.5	-105.7	94.3	151	7.35
0990	SW350	16/11/2022	2.17	31.6	-115.5	84.5	329.9	7.08
0990	SW350	14/11/2023	3.03	31.2	54.2	254.2	108.2	7.31
0990	SW350	12/03/2024	4.07	30.9	19.8	219.8	84.7	7.53

Table T4
Current and Historical Surface Water Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T4 - Current and Historical Surface Water Analytical Results

				PFAS (Full Suite)																													
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99%																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
OTH008	07 Sep 2017	0990_PB043_170907	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	<0.01	0.02	0.08	0.31	<0.01	0.01	0.29	0.02	0.07	<0.01	<0.01	<0.01	0.87	0.6
OTH008	28 Sep 2017	0990_PB043_170928	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	<0.01	0.02	0.11	0.42	<0.01	0.02	0.42	0.03	0.08	<0.01	<0.01	<0.01	1.17	0.84
OTH008	11 Oct 2017	0990_PB043N_171011	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	<0.01	0.02	0.09	0.34	<0.01	0.01	0.36	0.02	0.06	<0.01	<0.01	<0.01	0.97	0.7
OTH008	11 Oct 2017	0990_PB043S_171011	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	<0.01	0.02	0.09	0.33	<0.01	0.02	0.34	0.03	0.06	<0.01	<0.01	<0.01	0.96	0.67
OTH008	22 Nov 2017	0990_PB043_171122	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.1	<0.01	<0.01	0.09	<0.01	0.03	<0.01	<0.01	<0.01	0.27	0.19
OTH008	22 Nov 2017	0990_QCPB424_171122	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.1	<0.01	<0.01	0.08	<0.01	0.03	<0.01	<0.01	<0.01	0.26	0.18
OTH008	22 Nov 2017	0990_QCPB424A_171122	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.12	<0.02	<0.01	0.08	<0.02	<0.02	<0.05	<0.02	<0.02	0.28	0.2
OTH008	21 Dec 2017	0990_PB043_171221	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<0.01	<0.01	0.05	<0.01	0.01	<0.01	<0.01	<0.01	0.15	0.11
OTH008	15 Jan 2018	0990_PB043_180115	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<0.01	<0.01	0.05	<0.01	0.02	<0.01	<0.01	<0.01	0.16	0.11
OTH008	15 Jan 2018	0990_QCSW510_180115	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<0.01	<0.01	0.04	<0.01	0.02	<0.01	<0.01	<0.01	0.15	0.1
OTH008	15 Jan 2018	0990_QCSW511_180115	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.08	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.14	0.12
OTH008	30 Jan 2018	0990_PB043_180130	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	0.09
OTH008	30 Jan 2018	0990_QCSW547_180130	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	0.09
OTH008	30 Jan 2018	0990_QCSW548_180130	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.03	0.04	<0.02	<0.05	<0.02	<0.02	0.12	0.08
OTH008	12 Feb 2018	0990_PB043_180212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.08
OTH008	12 Feb 2018	0990_QCSW582_180212	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<0.01	<0.01	0.03	<0.01	0.01	<0.01	<0.01	<0.01	0.13	0.09
OTH008	12 Feb 2018	0990_QCSW583_180212	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.05	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	0.07
OTH008	26 Feb 2018	0990_PB043_180226	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.04	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
OTH008	26 Feb 2018	0990_QCSW617_180226	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.04	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
OTH008	26 Feb 2018	QCSW618_180226	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
OTH008	12 Mar 2018	0990_PB043_180312	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.04	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
OTH008	04 Apr 2018	0990_PB043_180404	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.04	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01	0.12	0.08
OTH008	23 Apr 2018	0990_PB043_180423	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.04	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.08
OTH008	04 May 2018	0990_PB043_180504	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.06	<0.01	<0.01	0.05	0.01	0.01	<0.01	<0.01	<0.01	0.17	0.11
OTH008	04 May 2018	0990_QCMW825_180504	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
OTH008	04 May 2018	0990_QC MW 826_180504	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH008	20 Jun 2018	0990_PB043_180620	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	0.05	<0.01	0.01	<0.01	<0.01	<0.01	0.14	0.1
OTH008	16 Jul 2018	0990_PB043_180716	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<0.01	<0.01	0.05	<0.01	0.01	<0.01	<0.01	<0.01	0.15	0.11
OTH008	07 Aug 2018	0990_PB043_180807	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.06	<0.01	<0.01	0.06	<0.01	0.01	<0.01	<0.01	<0.01	0.17	0.12
OTH008	16 Aug 2018	0990_PB043_180816	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.09
OTH008	13 Sep 2018	0990_PB043_180913	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.06	<0.01	<0.01	0.05	<0.01	0.01	<0.01	<0.01	<0.01	0.15	0.11
OTH008	25 Sep 2018	0090_PB043_180925	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.07	<0.01	<0.01	0.06	<0.01	0.02	<0.01	<0.01	<0.01	0.18	0.13
OTH008	11 Oct 2018	0990_PB043_181011	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	0.09
OTH008	12 Dec 2018	0990_PB043_181212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.05	<0.01	<0.01	0.05	<0.01	0.01	<0.01	<0.01	<0.01	0.15	0.1
OTH008	28 Feb 2019	0990_PB043_190228	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
OTH008	27 Mar 2019	0990_PB043_190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.03	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
OTH008	12 Jun 2019	0990_PB043_190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.04	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.07
OTH008	31 Oct 2019	0990_OTH008_191031	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.06	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.1
OTH008	18 Feb 2020	0990_OTH008_200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.09
OTH008	27 May 2020	0990_OTH008_200527	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.05	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.08
OTH008	27 May 2020	0990_QC100_200527	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.05	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.08
OTH008	27 May 2020	0990_QC200_200527	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.019	0.033	<0.01	<0.01	0.021	<0.02	<0.01	<0.02	<0.02	<0.01	0.07	0.05
OTH008	22 Jul 2020	0990_OTH008_200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.06
OTH008	16 Nov 2020	0990_OTH008_201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.07
OTH008	02 Feb 2021	0990_OTH008_210202	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.03	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.05
OTH008	21 Apr 2021	0990_OTH008_210421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
OTH008	06 Jul 2021	0990_OTH008_210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.1	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.25	0.2
OTH008	10 Oct 2021	0990_OTH008_211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.08	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.17	0.14
OTH008	20 Dec 2021	0990_OTH008_211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.06	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.14	0.11
OTH008	16 Mar 2022	0990_OTH008_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.05	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.1
OTH008	16 Mar 2022	0990_QC102_220316	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.06	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.1
OTH008	16 Mar 2022	0990_QC202_220316	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.06	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.1
OTH008	14 Jun 2022	0990_OTH008_220614	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.07	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.2	0.17
OTH008	24 Oct 2022	0990_OTH008_221024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.06	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.1
OTH008	17 Jan 2023	0990_OTH008_230117	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.03	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.05
OTH008	03 Apr 2023	0990_OTH008_230403	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
OTH008	03 Apr 2023	0990_OTH008_230403	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
OTH008	24 Jul 2023	0990_OTH008_230724	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
OTH008	18 Sep 2023	0990_OTH008_230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
OTH008	16 Jan 2024	0990_OTH008_240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.06	0.06
SW016	03 Apr 2014	TDLWAT3	Primary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	0.4	-	-	-	-	-	-	-
SW016	06 Jun 2016	TDL WAT 3	Primary	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	0.39	-	-	-	-	-	-	-
SW016	01 May 2017	0990_SW16_17/05/01	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.04	0.11	0.44	<0.01	0.03	0.92	0.03	0.06	<0.01	<0.01	<0.01	1.72	0.44
SW016	20 Jan 2018	0990_QCSW519_180120	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	0.01	0.02	0.08	0.25	<0.01	0.02	0.77	0.03	0.05	<0.01	<0.01	<0.01	1.28	1.02
SW016	20 Jan 2018	0990_QCSW520_180120	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	0.21	<0.02	0.02	0.54	0.02	0.03	<0.05	<0.02	<0.02	0.92	0.75
SW016	20 Jan 2018	0990_SW121_180120	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	0.01	0.02	0.08	0.23	<0.01	0.02	0.8	0.03	0.05	<0.01	<0.01	<0.01	1.29	1.03
SW016	16 Feb 2018	0990_SW016_180216	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	0.01	0.02	0.07	0.22	<0.01	0.02	0.61	0.03	0.03	<0.01	<0.01	<0.01	1.05	0.83
SW016	23 Feb 2018	0990_SW016_180223	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.01	<0.01	<0.01	0.02	0.04	0.12	0.53	<0.01	0.04	1.2	0.03	0.08	<0.01	<0.01	<0.01	2.14	1.73
SW016	02 Mar 2018	0990_SW016_180302	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.01	<0.01	<0.01	0.02	0.05	0.14	0.67	<0.01	0.05	1	0.04	0.09	<0.01	<0.01	<0.01	2.14	1.67
SW016	09 Mar 2018	0990_SW016_180309	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.04	0.12	0.51	<0.01	0.03	1.3	0.03	0.08	<0.01	<0.01	<0.01	2.2	1.81
SW016	04 Apr 2018	0990_SW016_180404	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.01	<0.01	<0.01	0.02	0.03	0.11	0.44	<0.01	0.03	1.2	0.03	0.09	<0.01	<0.01	<0.01	2.01	1.64
SW016	12 Dec 2018	0990_QCSW871_181212	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.01	<0.01	<0.01	0.02	0.01	0.05	0.23	<0.01	0.02	0.82	0.01	0.02	<0.01	<0.01	<0.01	1.21	1.05
SW016	12 Dec 2018	0990_SW016_181212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	0.2	<0.01	0.02	0.78	0.04	0.02	<0.01	<0.01	<0.01	1.15	0.98
SW016	27 Mar 2019	0990_SW016_190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.07	<0.01	<0.01	0.33	<0.01	0.01	<0.01	<0.01	<0.01	0.44	0.4
SW016	22 Apr 2020	0990_SW016_200422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.51	<0.02	<0.02	<0.05	<0.02	<0.02	0.57	0.57
SW016	16 Dec 2020	0990_SW016_201216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.37	<0.02	<0.02	<0.05	<0.02	<0.02	0.4	0.4
SW016	21 Apr 2021	0990_QC105_210421	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	0.02	0.03	0.11	0.54	<0.02	0.03	0.6	0.06	0.06	<0.05	<0.02	<0.02	1.51	1.14
SW016	21 Apr 2021	0990_QC205_210421	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	0.05	0.06	<0.01	<0.01	<0.01	0.02	0.02	0.08	0.41	<0.01	0.03	0.57	0.04	0.05	<0.02	<0.02	<0.01	1.33	0.41
SW016	21 Apr 2021	0990_SW016_210421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.06	<0.02	<0.02	<0.02	0.02	0.03	0.12	0.52	<0.02	0.03	0.61	0.06	0.06	<0.05	<0.02	<0.02	1.51	1.13

Table T4
Current and Historical Surface Water Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T4 - Current and Historical Surface Water Analytical Results

AECOM

				PFAS (Full Suite)																													
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99%																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
SW016	20 Dec 2021	0990 SW016 211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	0.16	<0.02	0.02	0.42	<0.02	0.03	<0.05	<0.02	<0.02	0.76	0.58
SW016	15 Mar 2022	0990 SW016 220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.16	<0.02	0.02	0.45	<0.02	0.02	<0.05	<0.02	<0.02	0.69	0.61
SW016	11 Nov 2022	0990 SW016 221111	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.27	<0.02	<0.02	<0.05	<0.02	<0.02	0.31	0.31
SW016	16 Nov 2022	0990 QC102 221114	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.05	<0.02	0.01	0.33	<0.02	<0.02	<0.05	<0.02	<0.02	0.42	0.38
SW016	16 Nov 2022	0990 QC202 221114	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.022	0.052	<0.01	0.01	0.35	<0.02	<0.01	<0.02	<0.02	<0.01	0.43	0.40
SW016	16 Nov 2022	0990 SW016 221114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.05	<0.02	0.01	0.38	<0.02	<0.02	<0.05	<0.02	<0.02	0.47	0.43
SW016	16 Nov 2022	0990 SW016 221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.29	<0.02	<0.02	<0.05	<0.02	<0.02	0.32	0.32
SW016	28 Feb 2023	0990 QC100 230228	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.09
SW016	28 Feb 2023	0990 QC200 230228	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01	<0.01	0.055	<0.02	<0.01	<0.02	<0.02	<0.01	0.7	0.7
SW016	28 Feb 2023	0990 SW016 230228	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.07	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.09
SW016	13 Nov 2023	0990 QC200 231113	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	0.052	<0.01	<0.01	0.23	<0.02	<0.01	<0.02	<0.02	<0.01	0.30	0.28
SW016	13 Nov 2023	0990 QC100 231113	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.01	0.24	<0.02	<0.02	<0.05	<0.02	<0.02	0.31	0.29
SW016	13 Nov 2023	0990 SW016 231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.05	<0.02	<0.01	0.24	<0.02	<0.02	<0.05	<0.02	<0.02	0.31	0.29
SW016	12 Mar 2024	0990 SW016 240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.01	0.12	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	0.19
SW021	01 May 2017	0990 SW21 17/05/01	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.01	<0.01	<0.01	0.02	0.03	0.10	0.40	<0.01	0.03	0.91	0.03	0.05	<0.01	<0.01	<0.01	1.63	0.4
SW021	16 Feb 2018	0990 SW021 180216	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.01	<0.01	<0.01	<0.01	0.01	0.06	0.19	<0.01	0.02	0.50	0.02	0.03	<0.01	<0.01	<0.01	0.86	0.69
SW021	23 Feb 2018	0990 SW021 180223	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	0.01	0.02	0.08	0.35	<0.01	0.02	1.10	0.02	0.05	<0.01	<0.01	<0.01	1.70	1.45
SW021	02 Mar 2018	0990 SW021 180302	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.01	<0.01	<0.01	0.02	0.03	0.11	0.44	<0.01	0.04	0.93	0.03	0.06	<0.01	<0.01	<0.01	1.72	1.37
SW021	09 Mar 2018	0990 SW021 180309	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	0.01	0.03	0.08	0.34	<0.01	0.02	0.81	0.02	0.05	<0.01	<0.01	<0.01	1.41	1.15
SW021	04 Apr 2018	0990 SW021 180404	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.01	<0.01	<0.01	0.01	0.02	0.07	0.29	<0.01	0.02	0.74	0.02	0.06	<0.01	<0.01	<0.01	1.27	1.03
SW021	28 Feb 2019	0990 SW021 190228	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.05	<0.01	<0.01	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	0.21	0.2
SW021	27 Mar 2019	0990 SW021 190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.05	<0.01	<0.01	0.30	<0.01	<0.01	<0.01	<0.01	<0.01	0.37	0.35
SW021	16 Dec 2020	0990 SW021 201216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.16	<0.02	<0.02	<0.05	<0.02	<0.02	0.16	0.16
SW021	21 Apr 2021	0990 SW021 210421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.08	<0.02	<0.02	<0.02	0.02	0.03	0.12	0.46	<0.02	0.03	0.49	<0.02	0.06	<0.05	<0.02	<0.02	1.29	0.95
SW021	20 Dec 2021	0990 SW021 211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.20	<0.02	<0.02	<0.05	<0.02	<0.02	0.20	0.2
SW021	17 Nov 2022	0990 SW021 221114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.04	<0.02	<0.01	0.29	<0.02	<0.02	<0.05	<0.02	<0.02	0.35	0.33
SW021	28 Feb 2023	0990 SW021 230228	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
SW021	13 Nov 2023	0990 SW021 231113	Primary	<0.05	<0.05	<0.05	1.04	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.10	<0.02	0.21	0.04	<0.02	0.19	0.02	0.29	0.15	0.14	0.24	1.25	0.16	0.02	<0.05	<0.02	0.12	3.97	1.4
SW021	12 Mar 2024	0990 SW021 240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.08	<0.02	<0.02	<0.05	<0.02	<0.02	0.13	0.13
SW049	30 Apr 2017	0990 QC10SW 17/04/30	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.19	<0.01	<0.01	<0.01	0.07	0.08	0.44	1.40	<0.01	0.16	3.00	0.16	0.16	<0.01	<0.01	<0.01	5.75	1.4
SW049	30 Apr 2017	0990 SW49 17/04/30	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.19	<0.01	<0.01	<0.01	0.07	0.09	0.45	1.40	<0.01	0.16	3.30	0.14	0.16	<0.01	<0.01	<0.01	6.05	1.4
SW049	25 Jan 2018	0990 SW049 180125	Primary	<0.01	<0.01	0.07	1.10	<0.05	<0.05	<0.05	0.38	<0.05	<0.05	<0.05	1.10	1.70	0.12	<0.01	0.04	0.78	1.10	5.60	14.00	0.19	2.00	65.00	1.50	2.00	<0.01	<0.01	0.03	96.71	79
SW049	20 Dec 2021	0990 SW049 211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	1.37	<0.02	<0.02	<0.05	<0.02	<0.02	1.41	1.41
SW049	14 Nov 2022	0990 SW049 221114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.92	<0.02	<0.02	<0.05	<0.02	<0.02	0.94	0.94
SW049	28 Feb 2023	0990 SW049 230228	Primary	<0.05	<0.05	<0.05	0.13	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.1	0.19	<0.02	<0.02	0.03	0.07	0.08	0.45	1.22	0.02	0.18	3.69	0.16	0.19	<0.05	<0.02	<0.02	6.51	4.91
SW049	13 Nov 2023	0990 SW049 231113	Primary	<0.05	<0.05	0.11	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.1	0.16	<0.02	<0.02	0.03	0.05	0.06	0.38	0.74	<0.02	0.1	2.66	0.18	0.13	<0.05	<0.02	<0.02	4.7	3.4
SW049	12 Mar 2024	0990 SW049 240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.1	<0.02	<0.02	<0.02	0.03	0.03	0.19	0.48	<0.02	0.05	1.35	0.06	0.08	<0.05	<0.02	<0.02	2.37	1.83
SW100	07 Jul 2017	0990 SW100 170707	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	0.11	<0.01	<0.01	<0.01	<0.01	<0.01	0.16	0.05
SW100	09 Aug 2017	0990 SW100 170809	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	0.16	0.16
SW100	12 Oct 2017	0990 QCSW359 171012	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.08	<0.01	<0.01	0.15	<0.01	0.01	<0.01	<0.01	<0.01	0.27	0.23
SW100	12 Oct 2017	0990 QCSW360 171012	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.08	<0.02	<0.01	0.15	<0.02	<0.02	<0.05	<0.02	<0.02	0.28	0.23
SW100	12 Oct 2017	0990 SW100 171012	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.08	<0.01	<0.01	0.15	<0.01	0.02	<0.01	<0.01	<0.01	0.28	0.23
SW100	12 Oct 2017	0990 SW101 171012	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.08	<0.01	<0.01	0.16	<0.01	0.01	<0.01	<0.01	<0.01	0.27	0.24
SW100	15 Dec 2017	0990 SW100 171215	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.01
SW100	07 Feb 2018	0990 QCSW578 180207	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW100	07 Feb 2018	0990 QCSW579 180207	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW100	07 Feb 2018	0990 SW100 180207	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01
SW100	20 Mar 2018	0990 SW100 180320	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW100	01 May 2018	0990 SW100 180501	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.09
SW100	14 Sep 2018	0990 SW100 180914	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.11	<0.01	<0.01	0.13	<0.01	0.02	<0.01	<0.01	<0.01	0.29	0.24
SW100	12 Dec 2018	0990 SW100 181212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.08
SW100	27 Mar 2019	0990 QCSW898 190327	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW100	27 Mar 2019	0990 QCSW899 190327	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW100	27 Mar 2019	0990 SW100 190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW100	30 Oct 2019	0990 SW100 191030	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.15	<0.02	<0.01	0.16	<0.02	<0.02	<0.05	<0.02	<0.02	0.33	0.31
SW100	24 Apr 2020	0990 SW100 200424	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
SW100	16 Nov 2020	0990 SW100 201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.16	<0.02	<0.01	0.16	<0.02	0.02	<0.05	<0.02	<0.02	0.36	0.32
SW100	16 Dec 2020	0990 SW100 201216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW100	22 Apr 2021	0990 SW100 210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW100	20 Dec 2021	0990 SW100 211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	0.1
SW100	16 Mar 2022	0990 SW100 220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW100	24 Oct 2022	0990 SW100 221024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	<0.01	0.11	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	0.19
SW100	29 Mar 2023	0990 SW100 230329	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
SW100	18 Sep 2023	0990 SW100 230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.14	<0.02	0.02	<0.05	<0.02	<0.02	0.26	0.24
SW100	12 Mar 2024	0990 SW100 240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	09 Aug 2017	0990 SW108 170809	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.11
SW108	30 Aug 2017	0990 SW108 170830	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	0.09	<0.01	<0.01	<0.01	<0.01	<0.01	0.16	0.16
SW108	26 Sep 2017	0990 SW173 170926	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.12	<0.01	<0.01	0.14	<0.01	0.01	<0.01	<0.01	<0.01	0.29	0.26
SW108	12 Oct 2017	0990 SW108 171012	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	0.13	<0.01	0.01	<0.01	<0.01	<0.01	0.22	0.2
SW108	15 Dec 2017	0990 QCSW492 171215	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW108	15 Dec 2017	0990 QCSW493 171215	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	15 Dec 2017	0990 SW108 171215	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW108	06 Feb 2018	0990 SW108 180206	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
SW108	20 Mar 2018	0990 QCSW670 180320	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW108	20 Mar 2018	0990 SW108 180320	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW108	20 Mar 2018	QCSW671 180320	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	01 May 2018	0990 QCSW821 180501	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.06
SW108	01 May 2018	0990 QCSW822 180501	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
SW108	01 May 2018	0990 SW108 180501	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05

Table T4
Current and Historical Surface Water Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T4 - Current and Historical Surface Water Analytical Results

AECOM

				PFAS (Full Suite)																													
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99%																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
SW108	17 Jul 2018	0990 SW108 180717	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.08
SW108	07 Aug 2018	0990 SW108 180807	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	0.11	<0.01	<0.01	<0.01	<0.01	<0.01	0.16	0.16
SW108	16 Aug 2018	0990 SW108 180816	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	0.13	0.13
SW108	14 Sep 2018	0990 SW108 180914	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.1	<0.01	<0.01	0.12	<0.01	0.02	<0.01	<0.01	<0.01	0.27	0.22
SW108	11 Oct 2018	0990 SW108 181011	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.09	<0.01	<0.01	0.13	<0.01	0.02	<0.01	<0.01	<0.01	0.26	0.22
SW108	12 Dec 2018	0990 SW108 181212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
SW108	28 Feb 2019	0990 SW108 190228	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW108	27 Mar 2019	0990 SW108 190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW108	12 Jun 2019	0990 SW108 190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	0.14	0.14
SW108	31 Oct 2019	0990 QC102 191031	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.15	<0.02	<0.01	0.14	<0.02	<0.02	<0.05	<0.02	<0.02	0.31	0.29
SW108	31 Oct 2019	0990 QC202 191031	Inter-lab Duplicate	-	<0.0005	-	<0.0005	<0.0025	<0.0025	<0.0025	<0.002	<0.0025	<0.0025	<0.0025	0.0046	0.0140	<0.001	<0.001	<0.0005	0.0008	0.0051	0.0110	0.0980	<0.001	0.0037	0.1100	0.0031	0.0140	<0.001	<0.001	<0.001	0.26	0.2
SW108	31 Oct 2019	0990 SW108 191031	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.13	<0.02	<0.01	0.14	<0.02	0.02	<0.05	<0.02	<0.02	0.31	0.27
SW108	18 Nov 2019	0990 QC105 191118	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.17	<0.02	<0.01	0.23	<0.02	0.03	<0.05	<0.02	<0.02	0.48	0.4
SW108	18 Nov 2019	0990 SW108 191118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.17	<0.02	<0.01	0.25	<0.02	0.03	<0.05	<0.02	<0.02	0.5	0.42
SW108	18 Feb 2020	0990 SW108 200217	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	24 Apr 2020	0990 SW108 200424	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
SW108	22 Jul 2020	0990 QC101 200720	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.14	<0.02	<0.02	<0.05	<0.02	<0.02	0.24	0.24
SW108	22 Jul 2020	0990 QC201 200720	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.0120	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0920	<0.01	<0.01	0.1300	<0.02	0.0110	<0.02	<0.02	<0.01	-	0.092
SW108	22 Jul 2020	0990 SW108 200720	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.14	<0.02	<0.02	<0.05	<0.02	<0.02	0.24	0.24
SW108	16 Nov 2020	0990 SW108 201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.09	<0.02	<0.02	<0.05	<0.02	<0.02	0.18	0.18
SW108	01 Feb 2021	0990 SW108 210201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	22 Apr 2021	0990 SW108 210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW108	02 Jun 2021	0990 SW108 210602	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.11	0.11
SW108	06 Jul 2021	0990 SW108 210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.06	<0.02	<0.02	<0.05	<0.02	<0.02	0.1	0.1
SW108	10 Oct 2021	0990 SW108 211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	<0.02	<0.01	0.14	<0.02	<0.02	<0.05	<0.02	<0.02	0.25	0.25
SW108	21 Dec 2021	0990 SW108 211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW108	16 Mar 2022	0990 SW108 220315	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	14 Jun 2022	0990 SW108 220614	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	<0.01	0.12	<0.02	<0.02	<0.05	<0.02	<0.02	0.2	0.2
SW108	24 Oct 2022	0990 SW108 221024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.12	<0.02	<0.02	<0.05	<0.02	<0.02	0.21	0.21
SW108	18 Jan 2023	0990 SW108 230118	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	03 Apr 2023	0990 SW108 230403	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	03 Apr 2023	0990 SW108 230403	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	24 Jul 2023	0990 QC200 230724	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	0.058	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
SW108	24 Jul 2023	0990 QC100 230724	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.16	0.16
SW108	24 Jul 2023	0990 SW108 230724	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.16	0.16
SW108	18 Sep 2023	0990 SW108 230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.14	<0.02	0.02	<0.05	<0.02	<0.02	0.25	0.23
SW108	16 Jan 2024	0990 SW108 240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	10 Apr 2024	0990 QC201 240410	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.01
SW108	10 Apr 2024	0990 QC101 240410	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW108	10 Apr 2024	0990 SW108 240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW108	19 Jun 2024	0990 QC200 240619	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.033	<0.02	<0.01	<0.02	<0.02	<0.01	0.05	0.05
SW108	19 Jun 2024	0990 QC100 240619	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
SW108	19 Jun 2024	0990 SW108 240619	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.04	<0.02	<0.02	<0.05	<0.02	<0.02	0.07	0.07
SW110	07 Jul 2017	0990 SW110 170707	Primary	<0.001	<0.001	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.005	<0.001	0.001	0.008	0.001	0.001	<0.001	<0.001	<0.001	<0.1	<0.01
SW110	12 Oct 2017	0990 SW110 171012	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
SW110	15 Dec 2017	0990 SW110 171215	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW110	06 Feb 2018	0990 SW110 180206	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW110	21 Mar 2018	0990 SW110 180321	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW110	01 May 2018	0990 SW110 180501	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW110	13 Sep 2018	0990 SW110 180913	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
SW110	12 Dec 2018	0990 SW110 181212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW110	27 Mar 2019	0990 SW110 190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW110	30 Oct 2019	0990 SW110 191030	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
SW110	05 May 2020	0990 QC106 200505	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	05 May 2020	0990 QC206 200505	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.02
SW110	05 May 2020	0990 SW110 200505	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	16 Nov 2020	0990 SW110 201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	16 Dec 2020	0990 SW110 201216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	20 Apr 2021	0990 SW110 210420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	20 Dec 2021	0990 SW110 211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	16 Mar 2022	0990 SW110 220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	24 Oct 2022	0990 SW110 221024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	29 Mar 2023	0990 SW110 230329	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW110	18 Sep 2023	0990 SW110 230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW110	11 Mar 2024	0990 SW110 240311	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW140	26 Jul 2017	0990 SW140 170726	Primary	<0.01	<0.01	0.16	4.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.33	0.15	0.21	0.02	<0.01	0.62	0.13	0.77	0.9	0.52	0.82	3.7	0.4	0.12	<0.01	<0.01	0.04	13.09	4.6
SW140	26 Jul 2017	0990 SW140 170726	Primary	<0.01	<0.01	0.18	4.9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.33	0.14	0.23	<0.01	<0.01	0.67	0.16	0.79	0.91	0.59	0.78	3.8	0.44	0.13	<0.01	<0.01	0.03	14.08	4.71
SW140	26 Jan 2018	0990 SW140 180126	Primary	<0.01	<0.01	0.31	3.9	<0.05	<0.05	<0.05	0.15	<0.05	<0.05	<0.05	1.2	0.57	0.47	0.02	0.08	2.3	0.36	4.2	3.7	0.59	2.5	16	2.5	0.44	<0.01	<0.01	0.08	39.37	19.7
SW140	20 Dec 2021	0990 QC100 211220	Intra-lab Duplicate	<0.05	<0.05	<0.05	0.51	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	0.19	0.2	0.02	0.08	0.03	0.24	0.26	0.13	0.15	1.06	0.04	0.04	<0.05	0.04	0.2	3.24	1.32
SW140	20 Dec 2021	0990 QC200 211220	Inter-lab Duplicate	<0.01	<0.01	0.02	0.33	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.02	0.14	0.02	<0.01	0.06	0.01	0.12	0.19	0.10	0.12	0.67	0.04	0.02	<0.02	<0.02	0.04	1.90	0.19
SW140	20 Dec 2021	0990 SW140 211220	Primary	<0.05	<0.05	<0.05	0.5	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	0.18	0.12	<0.02	0.07	0.03	0.24	0.25	0.13	0.14	1.14	0.04	0.03	<0.05	0.03	0.18	3.12	1.39
SW140	17 Nov 2022	0990 SW140 221114	Primary	<0.05	<0.05	<0.05	1.08	<0.05	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	<0.1	0.04	0.2	0.02	<0.02	0.14	0.06	0.26	0.31	0.2	0.27	2.53	0.12	0.04	<0.05	<0.02	0.07	5.37	2.84
SW140	28 Feb 2023	0990 SW140 230228	Primary	<0.05	<0.05	0.19	4.2	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.2	0.42	0.45	0.06	<0.02	0.42	0.07	1.2	0.9	0.24	0.93	2.48	0.43	0.28	<0.05	<0.02	0.11	12.6	3.38
SW140	13 Nov 2023	0990 SW140 231113	Primary	<0.05	<0.05	0.11	2.81	<0.05	<0.02	<0.05	0.03	<0.05	<0.02	<0.05	0.3	<0.02	0.57	0.09	0.04	0.54	0.1	0.81	0.43	0.39	0.7	3.67	0.46	0.07	<0.05	<0.02	0.32	11.4	4.1
SW140	11 Mar 2024	0990 SW140 240311	Primary	<0.05	<0.05	<0.05	0.29	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	0.2	0.11	0.04	0.07	<0.02	0.1	0.11	0.47	0.88	0.03	0.16	3.07	0.11	0.11	<0.05	<0.02	0.06	5.81	3.95
SW151	09 Aug 2017	0990 SW151 170809	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	0.16	0.16
SW151	30 Aug 2017	0990 SW151 170830	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	0.09	<0.01	<0.01	<0.01	<0.01	<0.01	0.16	0.16
SW151	18 Oct 2017	0990 SW151 171018	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.08	<0.01	0.01	0.16	<0.01	0.01	<0.01	<0.01	<0.01	0.28	0.24
SW151	15 Dec 2017	0990 SW151 171215	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	0.1	0.1

Table T4
Current and Historical Surface Water Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T4 - Current and Historical Surface Water Analytical Results

AECOM

				PFAS (Full Suite)																													
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99%																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
SW151	01 Feb 2018	0990 SW151 180201	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW151	20 Mar 2018	0990 SW151 180320	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW151	01 May 2018	0990 SW151 180501	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.08
SW151	13 Sep 2018	0990 SW151 180913	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.09	<0.01	<0.01	0.09	<0.01	0.02	<0.01	<0.01	<0.01	0.23	0.18
SW151	12 Dec 2018	0990 SW151 181212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.06
SW151	02 Apr 2019	0990 SW151 190402	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW151	31 Oct 2019	0990 SW151 191031	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.12	<0.02	<0.02	<0.05	<0.02	<0.02	0.24	0.22
SW151	19 Nov 2019	0990 SW151 191119	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.12	<0.02	<0.02	<0.05	<0.02	<0.02	0.21	0.21
SW151	21 Apr 2020	0990 SW151 200421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
SW151	16 Nov 2020	0990 SW151 201116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.01	0.12	<0.02	<0.02	<0.05	<0.02	<0.02	0.24	0.24
SW151	16 Dec 2020	0990 QC100 201216	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW151	16 Dec 2020	0990 QC200 201216	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.02
SW151	16 Dec 2020	0990 SW151 201216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW151	22 Apr 2021	0990 SW151 210422	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW151	01 Jun 2021	0990 SW151 210601	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	0.09
SW151	28 Oct 2022	0990 SW010 221028	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.01	0.13	<0.02	<0.02	<0.05	<0.02	<0.02	0.2	0.2
SW151	24 Oct 2023	0990 QC201 231024	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.11	<0.01	<0.01	0.14	<0.02	0.013	<0.02	<0.02	<0.01	0.29	0.25
SW151	24 Oct 2023	0990 QC147 231024	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.19	0.19
SW151	24 Oct 2023	0990 SW151 231024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	<0.02	<0.01	0.1	<0.02	<0.02	<0.05	<0.02	<0.02	0.2	0.2
SW153	02 Aug 2017	0990 SW153 170802	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
SW153	28 Sep 2017	0990 SW153 170928	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
SW153	08 Nov 2017	0990 SW153 171108	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	16 Dec 2017	0990 SW153 171216	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	07 Feb 2018	0990 SW153 180207	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW153	12 Mar 2018	0990 SW153 180312	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	04 Apr 2018	0990 SW153 180404	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
SW153	23 Apr 2018	0990 SW153 180423	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.05
SW153	01 May 2018	0990 SW153 180501	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
SW153	22 Jun 2018	0990 SW153 180622	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	17 Jul 2018	0990 SW153 180717	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	07 Aug 2018	0990 SW153 180807	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	16 Aug 2018	0990 SW153 180816	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	14 Sep 2018	0990 SW153 180914	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
SW153	25 Sep 2018	0090 SW153 180925	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.04
SW153	11 Oct 2018	0990 SW153 181011	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	12 Dec 2018	0990 SW153 181212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.03
SW153	28 Feb 2019	0990 SW153 190228	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW153	27 Mar 2019	0990 SW153 190327	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW153	12 Jun 2019	0990 SW153 190612	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	0.02
SW153	31 Oct 2019	0990 SW153 191031	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
SW153	18 Feb 2020	0990 QC101 200218	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW153	18 Feb 2020	0990 SW153 200218	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
SW153	18 Feb 2020	QC201 200218	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.02
SW153	24 Apr 2020	0990 SW153 200424	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW153	22 Jul 2020	0990 SW153 200721	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
SW153	16 Nov 2020	0990 SW153 201116.	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW153	01 Feb 2021	0990 SW153 210201	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW153	23 Apr 2021	0990 SW153 210423	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW153	06 Jul 2021	0990 SW153 210606	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW153	10 Oct 2021	0990 SW153 211010	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.01	0.01
SW153	20 Dec 2021	0990_QC102_211220	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW153	20 Dec 2021	0990 QC202 211220	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.01	<0.02
SW153	20 Dec 2021	0990 SW153 211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.01	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW153	16 Mar 2022	0990 SW153 220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW153	14 Jun 2022	0990 SW153 220614	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW153	24 Oct 2022	0990 SW153 221024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW153	17 Jan 2023	0990 SW153 230117	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW153	03 Apr 2023	0990 SW153 230403	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
SW153	03 Apr 2023	0990 SW153 230403	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
SW153	24 Jul 2023	0990 SW153 230724	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW153	18 Sep 2023	0990 SW153 230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW153	16 Jan 2024	0990 SW153 240116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW153	10 Apr 2024	0990 SW153 240410	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.04	0.04
SW153	19 Jun 2024	0990 SW153 240619	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW161	22 Aug 2017	0990 QCSS195 170822	Intra-lab Duplicate	<0.001	<0.001	0.006	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.006	0.007	0.037	0.001	<0.001	<0.001	<0.001	0.001	0.077	0.041
SW161	22 Aug 2017	0990 QCSW195A 170822	Inter-lab Duplicate	<0.001	<0.001	0.001	0.004	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0064	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0114	0.0064
SW161	22 Aug 2017	0990 SW161 170822	Primary	<0.001	<0.001	<0.005	0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.0096	<0.001	<0.001	<0.001	<0.001	<0.001	0.0156	0.0096
SW161	11 Sep 2017	0990 SW161 170911	Primary	<0.001	<0.001	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0065	<0.001	<0.001	<0.001	<0.001	<0.001	<0.1	<0.01
SW161	20 Sep 2017	0990 QCSW262 170920	Intra-lab Duplicate	<0.001	<0.001	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	0.004
SW161	20 Sep 2017	0990 QCSW263 170920	Inter-lab Duplicate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0045	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0045	0.0045
SW161	20 Sep 2017	0990 SW161 170920	Primary	<0.001	<0.001	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	0.003
SW161	18 Oct 2017	0990 SW161 171018	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW161	15 Dec 2017	0990 SW161 171215	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW161	06 Feb 2018	0990 SW161 180206	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW161	20 Mar 2018	0990 SW161 180320	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<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	<0.1	<0.01
SW161	31 Oct 2019	0990 SW161 191031	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	20 Apr 2020	0990 SW161 200420	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	17 Nov 2020	0990 QC101 201117	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	17 Nov 2020	0990 QC201 201117	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.1	<0.02

Table T4
Current and Historical Surface Water Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T4 - Current and Historical Surface Water Analytical Results

AECOM

				PFAS (Full Suite)																													
				10:2 FTS	4:2 FTS	6:2 FTS	8:2 FTS	EtFOSA	EtFOSAA	EtFOSE	FOSA	MeFOSA	MeFOSAA	MeFOSE	PFBA	PFBS	PFDA	PFDoDA	PFDS	PFHpA	PFHpS	PFHxA	PFHxS	PFNA	PFOA	PFOS	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of PFAS	Sum of PFHxS and PFOS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			LOR	0.05	0.05	0.05	0.05	0.05	0.02	0.05	0.02	0.05	0.02	0.05	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.02	0.05	0.02	0.02	0.01	0.01
Ecological Receptors																																	
PFAS NEMP 2020 Freshwater 99%																									19	0.00023							
Human Health Receptors																																	
PFAS NEMP 2020 Drinking Water																									0.56								0.07
PFAS NEMP 2020 Recreational Water																									10								2
Location Code	**Date**	**Field ID**	**Sample Type**																														
SW161	17 Nov 2020	0990_SW161_201117	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	16 Dec 2020	0990_SW161_201216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.03	<0.01	<0.01
SW161	23 Apr 2021	0990_SW161_210423	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	20 Dec 2021	0990_SW161_211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	16 Mar 2022	0990_SW161_220316	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	24 Oct 2022	0990_SW161_221024	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	27 Oct 2022	0990_SW009_221027	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.01	0.16	<0.02	0.02	<0.05	<0.02	<0.02	0.3	0.28
SW161	29 Mar 2023	0990_QC100_230329	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	29 Mar 2023	0990_QC200_230329	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02*	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	29 Mar 2023	0990_SW161_230329	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	18 Sep 2023	0990_QC202_230918	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.1	<0.01	<0.05	<0.01	<0.1	<0.05	<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	<0.02	<0.02	<0.01	<0.01	<0.01
SW161	18 Sep 2023	0990_QC102_230918	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	18 Sep 2023	0990_SW161_230918	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW161	11 Mar 2024	0990_SW161_240311	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01
SW188	02 Apr 2014	TDLQW1	Intra-lab Duplicate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	0.8	-	-	-	-	-	-	-
SW188	02 Apr 2014	TDLQW2	Inter-lab Duplicate	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	0.85	-	-	-	-	-	-	-
SW188	02 Apr 2014	TDLWAT2	Primary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	1.4	-	-	-	-	-	-	-
SW188	16 Feb 2018	0990_SW188_180216	Primary	<0.01	<0.01	<0.05	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.12	<0.01	<0.01	<0.01	0.04	0.06	0.27	0.81	<0.01	0.08	2.6	0.09	0.11	<0.01	<0.01	<0.01	4.26	3.41
SW188	23 Feb 2018	0990_SW188_180223	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.03	0.04	0.14	0.55	<0.01	0.05	1.2	0.04	0.07	<0.01	<0.01	<0.01	2.19	1.75
SW188	02 Mar 2018	0990_QCSW630_180302	Intra-lab Duplicate	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.03	0.04	0.15	0.65	<0.01	0.06	1.8	0.06	0.07	<0.01	<0.01	<0.01	2.93	2.45
SW188	02 Mar 2018	0990_SW188_180302	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.03	0.04	0.16	0.65	<0.01	0.06	1.4	0.06	0.07	<0.01	<0.01	<0.01	2.54	2.05
SW188	02 Mar 2018	QCSW631_180302	Inter-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.07	<0.02	<0.02	<0.02	0.02	0.04	0.13	0.56	<0.02	0.05	0.97	0.06	0.07	<0.05	<0.02	<0.03	1.97	1.53
SW188	09 Mar 2018	0990_SW188_180309	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.01	<0.01	<0.01	0.02	0.03	0.1	0.43	<0.01	0.03	1.1	0.04	0.06	<0.01	<0.01	<0.01	1.86	1.53
SW188	04 Apr 2018	0990_SW188_180404	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.01	<0.01	<0.01	0.02	0.05	0.13	0.52	<0.01	0.04	1.2	0.05	0.12	<0.01	<0.01	<0.01	2.2	1.72
SW188	27 Mar 2019	0990_SW188_190327	Primary	<0.01	<0.01	<0.05	0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.07	<0.01	<0.01	0.02	0.02	0.03	0.17	0.32	<0.01	0.06	2.7	0.06	0.05	<0.01	<0.01	<0.01	3.62	3.02
SW188	16 Dec 2020	0990_SW188_201216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.01	0.53	<0.02	<0.02	<0.05	<0.02	<0.02	0.55	0.55
SW188	21 Apr 2021	0990_SW188_210421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.05	<0.02	<0.02	<0.02	0.02	0.03	0.11	0.45	<0.02	0.04	0.66	0.06	0.05	<0.05	<0.02	<0.02	1.47	1.11
SW188	20 Dec 2021	0990_SW188_211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.24	<0.02	<0.02	<0.05	<0.02	<0.03	0.24	0.24
SW188	21 Oct 2022	0990_SW188_221021	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.01	0.94	<0.02	<0.02	<0.05	<0.02	<0.02	0.99	0.99
SW188	14 Nov 2022	0990_SW188_221114	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
SW188	13 Nov 2023	0990_SW188_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.38	<0.02	<0.02	<0.05	<0.02	<0.02	0.41	0.41
SW188	12 Mar 2024	0990_SW188_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.25	<0.02	0.02	0.51	0.02	0.04	<0.05	<0.02	<0.02	0.94	0.76
SW350	12 Dec 2018	0990_TDLWAT5_181212	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.09
SW350	02 Apr 2019	0990_TDLWAT5_190402	Primary	<0.01	<0.01	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02
SW350	16 Dec 2020	0990_SW350_201216	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	0.05
SW350	21 Apr 2021	0990_QC104_210421	Intra-lab Duplicate	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW350	21 Apr 2021	0990_QC204_210421	Inter-lab Duplicate	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.05	<0.01	<0.02	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.01	<0.1	<0.02
SW350	21 Apr 2021	0990_SW350_210421	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	0.02
SW350	20 Dec 2021	0990_SW350_211220	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW350	16 Nov 2022	0990_SW350_221116	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	0.03	<0.02	<0.02	<0.05	<0.02	<0.02	0.03	0.03
SW350	28 Feb 2023	0990_SW350_230228	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.03	<0.01	<0.01
SW350	13 Nov 2023	0990_SW350_231113	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.01	0.05	<0.02	<0.02	<0.05	<0.02	<0.02	0.08	0.08
SW350	12 Mar 2024	0990_SW350_240312	Primary	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01

Table T5
Current and Historical Biota Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T5 - Current and Historical Biota Analytical Results

AECOM

Location Code	Field ID	Date	Fauna Group	Species	Sample Type	PFAS - Perfluoroalkyl Sulfonic Acids: Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	PFAS - Perfluoroalkyl Carboxylic Acids: 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)	PFAS - (n:2) Fluorotelomer Sulfonic Acids: 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)	PFAS - Perfluoroalkyl Sulfonamides: 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)	PFAS: Sum of PFOS and PFHxS	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
					LOR	0.001	0.001	0.001	0.001	0.001	0.002	0.005	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.001	0.002	0.002	0.001	0.001	0.001
Department of Health 2019 2-6 years Crustaceans (invertebrate)								0.065		0.065						0.52																	0.065	
Department of Health 2019 2-6 years Finfish (fish)								0.0052		0.0052						0.041																	0.0052	
BIO078	0990_FH186_170927	27 Sep 2017	Fish	Cherabin whole	Primary	<0.0005	<0.0005	0.0012	<0.0005	0.053	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0542	0.0542
	0990_FH316_180226	26 Feb 2018	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.013	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.013	0.013
	0990_FH317_180226	26 Feb 2018	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.016	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.016	0.016
	0990_FH318_180226	26 Feb 2018	Fish	Barramundi liver	Primary	<0.0005	<0.0005	0.0009	0.0007	0.15	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1509	0.1516
	0990_FH319_180226	26 Feb 2018	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0085	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0085	0.0085
	0990_FH320_180226	26 Feb 2018	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.013	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.013	0.013
	0990_FH321_180226	26 Feb 2018	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.02	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.02	0.02
	0990_FH322_180226	26 Feb 2018	Fish	Barramundi liver	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.1	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1	0.1
	0990_FH323_180226	26 Feb 2018	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.012	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.012	0.012
	0990_FH324_180228	28 Feb 2018	Fish	Ord River Mullet gutted whole	Primary	<0.0005	<0.0005	0.0006	0.0006	0.32	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.3206	0.3212
	0990_FH325_180228	28 Feb 2018	Fish	Ord River Mullet gutted whole	Primary	<0.0005	<0.0005	0.0004	0.0005	0.31	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.3104	0.3109
	0990_FH326_180228	28 Feb 2018	Fish	Ord River Mullet gutted whole	Primary	<0.0005	<0.0005	0.0005	0.0006	0.38	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.3805	0.3811
	0990_FH327_180228	28 Feb 2018	Fish	Ord River Mullet gutted whole	Primary	<0.0005	<0.0005	0.0005	0.0006	0.34	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.3405	0.3411
	0990_FH328_180228	28 Feb 2018	Fish	Ord River Mullet fillet	Primary	<0.0005	<0.0005	0.0004	<0.0005	0.16	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1604	0.1604
	0990_FH329_180228	28 Feb 2018	Fish	Ord River Mullet liver	Primary	<0.0005	<0.0005	0.0009	0.0008	0.23	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.2309	0.2317
	0990_FH330_180228	28 Feb 2018	Fish	Ord River Mullet fillet	Primary	<0.0005	<0.0005	0.0005	<0.0005	0.14	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1405	0.1405
	0990_FH339_180301	01 Mar 2018	Fish	Ord River Mullet liver	Primary	<0.0005	<0.0005	0.0018	0.0014	0.78	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.7818	0.7832
	0990_FH340_180301	01 Mar 2018	Fish	Ord River Mullet fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.026	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.026	0.026
	0990_FH341_180301	01 Mar 2018	Fish	Ord River Mullet fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.059	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.059	0.0597
	0990_FH342_180301	01 Mar 2018	Fish	Ord River Mullet fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.091	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.091	0.0918
	0990_FH349_180302	02 Mar 2018	Fish	Sooty Grunter liver	Primary	<0.0005	<0.0005	0.0004	<0.0005	0.31	<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	<0.0005	<0.0005	<0.0005	<0.0005	0.0024	<0.0005	<0.0005	<0.0005	0.3104	0.3128
	0990_FH350_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.039	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.039	0.039
	0990_FH351_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.032	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.032	0.032
	0990_FH352_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.037	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.037	0.037
	0990_FH353_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0003	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	0990_FH354_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.064	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.064	0.064
	0990_FH362_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.053	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.053	0.053
	0990_FH363_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.034	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.034	0.034
	0990_FH364_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.012	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.012	0.012
	0990_FH365_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.078	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.078	0.078
	0990_FH366_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.021	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.021	0.021
	0990_FH367_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0067	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0067	0.0067
	0990_FH368_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.019	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.019	0.019
	0990_FH369_180302	02 Mar 2018	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.021	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.021	0.021
	0990_FH393_180307	07 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0023	0.0012	0.16	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1623	0.1635
	0990_FH394_180307	07 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0032	0.001	0.17	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1732	0.1742
	0990_FH395_180307	07 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0041	0.0015	0.2	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.2041	0.2056
	0990_FH396_180307	07 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0038	0.001	0.13	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1338	0.1348
	0990_FH405_180307	07 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0006	0.0005	0.14	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1406	0.1411
	0990_FH406_180307	07 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0007	0.0006	0.12	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1207	0.1213
	0990_FH407_180307	07 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0008	<0.0005	0.055	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0558	0.0558
	0990_FH408_180308	08 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0012	0.0007	0.13	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1312	0.1319
	0990_FH409_180308	08 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.001	<0.0005	0.029	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.03	0.03
	0990_FH410_180308	08 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0013	<0.0005	0.031	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0323	0.0323
	0990_FH411_180308	08 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0008	<0.0005	0.021	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0218	0.0218
	0990_FH412_180308	08 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0088	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0088	0.0088
	0990_FH413_180308	08 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0052	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0052	0.0052
	0990_FH414_180309	09 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0012	0.0006	0.086	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0872	0.0878
	0990_FH415_180309	09 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0012	0.0005	0.081	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0822	0.0827
	0990_FH416_180309	09 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0012	<0.0005	0.048	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0492	0.0492
	0990_FH417_180309	09 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0037	0.0011	0.14	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1437	0.1448
	0990_FH418_180309	09 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0022	0.0008	0.094	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0962	0.097
	0990_FH419_180309	09 Mar 2018	Fish	Black Catfish fillet	Primary	<0.0005	<0.0005	0.0022	0.0005	0.07	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0722	0.0727
	0990_FH441_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.01	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.01	0.01
	0990_FH443_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0069	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0069	0.0069
	0990_FH444_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.011	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.011	0.011
	0990_FH445_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0083	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0083	0.0083
	0990_FH446_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.008	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.008	0.008
	0990_FH447_180315	15 Mar 2018	Fish	Sleepy Cod liver	Primary	<0.0005	0.0011	<0.0003	<0.0005	0.083	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.083	0.0841
	0990_FH448_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.014	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.014	0.014
	0990_FH449_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.019	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.019	0.019
	0990_FH450_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.018	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.018	0.018
	0990_FH451_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.016	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.016	0.016
	0990_FH452_180315	15 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.017	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.017	0.017
	0990_FH456_180316	16 Mar 2018	Fish	Sleepy Cod liver	Primary	<0.0005	0.0008	<0.0003	<0.0005	0.048	<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	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	0.048	0.0495
	0990_FH457_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0097	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0097	0.0097
	0990_FH458_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.011	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.011	0.011
	0990_FH459_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.015	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.015	0.015
	0990_FH460_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.012	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.012	0.012
	0990_FH461_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.045	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.045	0.045
	0990_FH462_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.037	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.037	0.037
	0990_FH463_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.043	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.043	0.043
	0990_FH464_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.032	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.032	0.032
	0990_FH465_180316	16 Mar 2018	Fish	Sleepy Cod fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.027	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.027	0.027
	0990_FH466_180316	16 Mar 2018	Fish	Sleepy Cod liver	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.18	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.18	0.18
	0990_FH473_180316	16 Mar 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0043	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0043	0.0043
	0990_FH474_180316	16 Mar 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0042	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0042	0.0042
	0990_FH475_180316	16 Mar 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0044	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0044	0.0044
	0990_FH476_180316	16 Mar 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0065	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0065	0.0065
	0990_FH477_180316	16 Mar 2018	Fish	Ord River Mullet fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.018	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.018	0.018
	0990_FH483_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	0.0005	<0.0005	0.12	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1205	0.1205
	0990_FH484_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	0.0005	<0.0005	0.12	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1205	0.1205
	0990_FH485_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.048	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.048	0.048
	0990_FH486_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.059	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.059	0.059
	0990_FH489_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.052	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.052	0.052
	0990_FH490_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	0.0004	<0.0005	0.1	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1004	0.1004
	0990_FH491_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.055	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.055	0.055
	0990_FH497_180404	04 Apr 2018	Fish	Bony bream gutted whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.1	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0057	<0.0005	<0.0005	0.1	0.1057
	0990_FH498_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	0.0004	<0.0005	0.11	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1104	0.1104
	0990_FH499_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	0.0003	<0.0005	0.079	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0064	<0.0005	<0.0005	0.0793	0.0857
	0990_FH500_180404	04 Apr 2018	Fish	Bony bream fillet	Primary	<0.0005	<0.0005	0.0004	<0.0005	0.082	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0824	0.0824
	0990_FH507_180406	06 Apr 2018	Fish	Barred Grunter gutted whole	Primary	<0.0005	<0.0005	0.0006	<0.0005	0.057	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0576	0.0576
	0990_FH508_180406	06 Apr 2018	Fish	Barred Grunter gutted whole	Primary	<0.0005	<0.0005	0.001	0.0012	0.16	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.161	0.1622
	0990_FH509_180406	06 Apr 2018	Fish	Barred Grunter gutted whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.096	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.096	0.096
	0990_FH512_180406	06 Apr 2018	Fish	Barred Grunter gutted whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0097	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0097	0.0097
	0990_FH390_181218	18 Dec 2018	Crustacean	Cherabin whole fish	Primary	<0.0005	<0.0005	0.0006	0.0007	0.012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.0126	0.0133
	0990_FH391_181218	18 Dec 2018	Crustacean	Cherabin whole fish	Primary	<0.0005	<0.0005	0.0007	<0.0005	0.0077	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.0084	0.0084
	0990_FH392_181218	18 Dec 2018	Crustacean	Cherabin whole fish	Primary	<0.0005	<0.0005	0.0006	0.0007	0.014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.0146	0.0153
	0990_FH393_181218	18 Dec 2018	Fish	Barramundi flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.019	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.019	0.019
	0990_FH394_181218	18 Dec 2018	Fish	Barramundi flesh, right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.023	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.023	0.023
	0990_FH395_181218	18 Dec 2018	Fish	Barramundi flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.029	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.029	0.029
	0990_FH397_181218	18 Dec 2018	Fish	Barramundi flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.048	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.048	0.048
	0990_FH398_181218	18 Dec 2018	Fish	Barramundi flesh, right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.048	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.048	0.048
	0990_FH401_181218	18 Dec 2018	Fish	Mullet flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.062	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.062	0.062
	0990_FH402_181218	18 Dec 2018	Fish	Mullet flesh, right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.07	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.07	0.07
	0990_FH403_181218	18 Dec 2018	Fish	Mullet flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.075	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.075	0.075
	0990_FH404_181218	18 Dec 2018	Fish	Mullet flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.054	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.054	0.054
	0990_FH406_181218	18 Dec 2018	Fish	Black catfish flesh, left and right fillet	Primary	<0.0005	<0.0005	0.0008	<0.0005	0.052	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.0528	0.0528
	0990_FH408_181218	18 Dec 2018	Fish	Blue catfish whole minus guts	Primary	<0.0005	<0.0005	0.001	0.0009	0.11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.111	0.1119
	0990_FH410_181218	18 Dec 2018	Fish	Butler's grunter flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.024	0.024
	0990_FH411_181218	18 Dec 2018	Fish	Sooty Grunteer / Black Bream whole minus guts	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.059	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.059	0.059
	0990_FH413_181218	18 Dec 2018	Fish	Sleepy Cod whole minus guts	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.013	0.013
	0990_FH414_181218	18 Dec 2018	Fish	Barred Grunter whole minus guts	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.06	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.06	0.06
	0990_FH417_181218	18 Dec 2018	Fish	Bony Bream whole minus guts	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.022	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.022	0.022
	0990_FH418_181218	18 Dec 2018	Fish	Bony Bream whole minus guts	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.013	0.013
	0990_FH419_181218	18 Dec 2018	Fish	Bony Bream whole minus guts	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.031	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.031	0.031
	0990_BIOAFA180_191119	19 Nov 2019	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
	0990_QC106_191119	19 Nov 2019	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
	0990_BIOAFA181_191119	19 Nov 2019	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	0.013	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.013	0.013
	0990_BIOAFA187_191119	19 Nov 2019	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	0.007	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.007	0.007
	0990_QC107_191119	19 Nov 2019	Fish	Blue Catfish (Neoarius graeffei)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
	0990_BIOAFA188_191119	19 Nov 2019	Fish	Giant Gudgeon (Oxyeleotris selheimi)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
	0990_BIOAFA189_191119	19 Nov 2019	Fish	Giant Gudgeon (Oxyeleotris selheimi)	Primary	<0.001	<0.001	<0.001	<0.001	0.022	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.022	0.022
	0990_BIOAFA191_191119	19 Nov 2019	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.014	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.014	0.014
	0990_BIOAFA192_191119	19 Nov 2019	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.019	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.019	0.019
	0990_BIOAFA193_191119	19 Nov 2019	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.012	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.012	0.012
	0990_BIOAFA194_191119	19 Nov 2019	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.020	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.020	0.02
	0990_BIOAFA195_191119	19 Nov 2019	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.019	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.019	0.019
	0990_BIOAFA196_191119	19 Nov 2019	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.040	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.040	0.04

Table T5
Current and Historical Biota Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T5 - Current and Historical Biota Analytical Results

AECOM

Sample ID	Date	Type	Species	Sample Type	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)	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)	Sum of PFOS and PFHxS	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
0990_BIOAFA197_191119	19 Nov 2019	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.030**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.030**	0.03
0990_BIOAFA198_191119	19 Nov 2019	Fish	Sooty Grunter / Black Bream (Hephaestus fuliginosus)	Primary	<0.001	<0.001	<0.001	<0.001	**0.015**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.015**	0.015
0990_BIOAFA201_191119	19 Nov 2019	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.009**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.009**	0.009
0990_BIOAFA204_191119	19 Nov 2019	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA205_191119	19 Nov 2019	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
0990_BIOAFA206_191119	19 Nov 2019	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.006	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.006	0.006
0990_BIOAFA207_191119	19 Nov 2019	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.018	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.019	0.019
0990_BIOAFA208_191119	19 Nov 2019	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	0.025	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.025	0.025
0990_BIOAFA209_191119	19 Nov 2019	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	**0.789**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.789**	0.789
0990_BIOAFA210_191119	19 Nov 2019	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	0.018	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.018	0.018
0990_BIOAFA211_191119	19 Nov 2019	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	**0.262**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.262**	0.262
0990_BIOAFA212_191119	19 Nov 2019	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	0.019	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.019	0.019
0990_BIOAFA213_191119	19 Nov 2019	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	**0.132**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.132**	0.132
0990_BIOAFA214_200707	07 Jul 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.006**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.006**	0.006
0990_QC110_200707	07 Jul 2020	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.012**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.009	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.012**	0.021
0990_BIOAFA215_200707	07 Jul 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.009
0990_BIOAFA216_200707	07 Jul 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.011
0990_BIOAFA217_200707	07 Jul 2020	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.020**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.020**	0.02
0990_QC111_200707	07 Jul 2020	Fish	Mullet (Planiliza ordensis)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.044**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.016	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.044**	0.06
0990_BIOAFA218_200707	07 Jul 2020	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.019**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.019**	0.019
0990_BIOAFA219_200707	07 Jul 2020	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.011**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.011**	0.011
0990_BIOAFA241_200707	07 Jul 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.002	<0.002	<0.002	<0.002	**0.020**	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.02
0990_BIOAFA242_200707	07 Jul 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.027**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.027**	0.029
0990_BIOAFA243_200707	07 Jul 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.022**	<0.002	0.007	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.022**	0.033
0990_BIOAFA244_200707	07 Jul 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.002	<0.002	0.002	<0.002	0.013	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	0.016	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	0.015	0.031
0990_BIOAFA245_200707	07 Jul 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.002	<0.002	0.005	<0.002	0.036	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	0.027	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	0.041	0.068
0990_BIOAFA246_200707	07 Jul 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.002	<0.002	<0.002	<0.002	0.013	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	0.005	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.018
0990_BIOAFA272_201109	09 Nov 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_QC121_201109	09 Nov 2020	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.020**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.020**	0.02
0990_BIOAFA273_201109	09 Nov 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	<0.002
0990_QC122_201109	09 Nov 2020	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.007
0990_BIOAFA274_201109	09 Nov 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
0990_BIOAFA275_201109	09 Nov 2020	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA276_201109	09 Nov 2020	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA278_201109	09 Nov 2020	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.007
0990_BIOAFA279_201109	09 Nov 2020	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	0.001	<0.001	**0.010**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.011**	0.011
0990_BIOAFA282_201109	09 Nov 2020	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_QC124_201109	09 Nov 2020	Fish	Sleepy Cod (Oxyeleotris lineolata)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.021**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.021**	0.021
0990_BIOAFA283_201109	09 Nov 2020	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA288_201109	09 Nov 2020	Fish	Sooty Grunter/Black Bream (Hephaestus fugliginosus	Primary	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	0.002	<0.001	0.002
0990_BIOAFA289_201109	09 Nov 2020	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.007
0990_BIOAFA290_201109	09 Nov 2020	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA291_201109	09 Nov 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.012**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.012**	0.012
0990_BIOAFA292_201109	09 Nov 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.008**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.008**	0.008
0990_BIOAFA293_201109	09 Nov 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.020**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.020**	0.02
0990_BIOAFA296_201109	09 Nov 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.007	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.008	0.008
0990_BIOAFA297_201109	09 Nov 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA298_201109	09 Nov 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
0990_BIOAFA299_201109	09 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA300_201109	09 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	0.001	<0.001	0.028	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.029	0.029
0990_BIOAFA301_201109	09 Nov 2020	Turtle	Northern Snapping Turtle (Elseya dentata)	Primary	<0.002	<0.002	<0.002	<0.002	0.065	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.065
0990_BIOAFA302_201109	09 Nov 2020	Turtle	Northern Snapping Turtle (Elseya dentata)	Primary	<0.002	<0.002	<0.002	<0.002	0.169	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.169
0990_BIOAFA303_201109	09 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.002	<0.002	<0.002	<0.002	0.110	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.11
0990_BIOAFA304_201109	09 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.002	<0.002	<0.002	<0.002	0.179	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.179
0990_BIOAFA336_210601	01 Jun 2021	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
0990_QC130_210601	01 Jun 2021	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
0990_BIOAFA337_210601	01 Jun 2021	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_QC131_210601	01 Jun 2021	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA338_210601	01 Jun 2021	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_QC132_210601	01 Jun 2021	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA339_210601	01 Jun 2021	Fish	Sooty Grunter / Black Bream (Hephaestus fuliginosus)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_QC133_210601	01 Jun 2021	Fish	Sooty Grunter / Black Bream (Hephaestus fuliginosus)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
0990_BIOAFA340_210601	01 Jun 2021	Fish	Sooty Grunter / Black Bream (Hephaestus fuliginosus)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA341_210601	01 Jun 2021	Fish	Sooty Grunter / Black Bream (Hephaestus fuliginosus)	Primary	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.001	0.001
0990_BIOAFA342_210601	01 Jun 2021	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	**0.016**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.016**	0.016
0990_BIOAFA343_210601	01 Jun 2021	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.007
0990_BIOAFA344_210601	01 Jun 2021	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	**0.015**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.015**	0.015
0990_BIOAFA345_210601	01 Jun 2021	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.008**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.008**	0.008
0990_BIOAFA346_210601	01 Jun 2021	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA347_210601	01 Jun 2021	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.006**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.006**	0.006
0990_BIOAFA348_210601	01 Jun 2021	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
0990_BIOAFA349_210601	01 Jun 2021	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA350_210601	01 Jun 2021	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA351_210601	01 Jun 2021	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.001	0.001
0990_BIOAFA352_210601	01 Jun 2021	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001
0990_BIOAFA353_210601	01 Jun 2021	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.001	0.001
0990_BIOAFA354_210601	01 Jun 2021	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001
0990_BIOAFA355_210601	01 Jun 2021	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA356_210601	01 Jun 2021	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA357_210601	01 Jun 2021	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	0.062	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.062	0.062
0990_BIOAFA358_210601	01 Jun 2021	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	**0.138**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.138**	0.138
0990_BIOAFA359_210601	01 Jun 2021	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	0.028	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.028	0.028
0990_BIOAFA414_221028	28 Oct 2022	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
0990_QC143_221028	28 Oct 2022	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.014**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.014**	0.014
0990_BIOAFA415_221028	28 Oct 2022	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
0990_QC144_221028	28 Oct 2022	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
0990_BIOAFA416_221028	28 Oct 2022	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.007
0990_QC145_221028	28 Oct 2022	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.010**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.010**	0.01
0990_BIOAFA417_221028	28 Oct 2022	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.014**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.014**	0.014
0990_QC146_221028	28 Oct 2022	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.014**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.014**	0.014
0990_BIOAFA418_221028	28 Oct 2022	Fish	Sooty Grunter / Black Bream (Hephaestus fuliginosus)	Primary	<0.001	<0.001	<0.001	<0.001	**0.008**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.008**	0.008
0990_BIOAFA419_221028	28 Oct 2022	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	0.002	<0.001	**0.063**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.065**	0.065
0990_BIOAFA420_221028	28 Oct 2022	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	**0.016**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.016**	0.016
0990_BIOAFA421_221028	28 Oct 2022	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	**0.024**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.024**	0.024
0990_BIOAFA422_221028	28 Oct 2022	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.018**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.018**	0.018
0990_BIOAFA423_221028	28 Oct 2022	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.012**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.012**	0.012
0990_BIOAFA424_221028	28 Oct 2022	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.022**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.022**	0.022
0990_BIOAFA425_221028	28 Oct 2022	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.026**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.026**	0.026
0990_BIOAFA426_221028	28 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.030**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.030**	0.03
0990_BIOAFA427_221028	28 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.040**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.040**	0.04
0990_BIOAFA428_221028	28 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.018**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.018**	0.018
0990_BIOAFA429_221028	28 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.021**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.021**	0.021
0990_BIOAFA430_221028	28 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.045**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.045**	0.045
0990_BIOAFA431_221028	28 Oct 2022	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.036**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.036**	0.036
0990_BIOAFA432_221028	28 Oct 2022	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.026**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.026**	0.026
0990_BIOAFA433_221028	28 Oct 2022	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.040**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.040**	0.04
0990_BIOAFA434_221028	28 Oct 2022	Fish	Archerfish (Toxotes chatareus)	Primary	<0.001	<0.001	<0.001	<0.001	**0.011**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.011**	0.011
0990_BIOAFA435_221028	28 Oct 2022	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	**0.011**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.011**	0.011
0990_BIOAFA436_221028	28 Oct 2022	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	**0.017**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.017**	0.017
0990_BIOAFA437_221028	28 Oct 2022	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	**0.014**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.014**	0.014
0990_BIOAFA438_221028	28 Oct 2022	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.014	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.015	0.015
0990_BIOAFA439_221028	28 Oct 2022	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.007	0.001	0.054	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.061	0.062
0990_BIOAFA440_221028	28 Oct 2022	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.014	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.015	0.015
0990_BIOAFA463_231024	24 Oct 2023	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.035**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.035**	0.035
0990_QC152_231024	24 Oct 2023	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.026**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.026**	0.026
0990_BIOAFA464_231024	24 Oct 2023	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.043**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.043**	0.043
0990_QC153_231024	24 Oct 2023	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.048**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.048**	0.048
0990_BIOAFA465_231024	24 Oct 2023	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.046**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.046**	0.046
0990_QC154_231024	23 Oct 2023	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.039**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.039**	0.039
0990_BIOAFA466_231024	24 Oct 2023	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.046**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.046**	0.046
0990_QC155_231024	24 Oct 2023	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.044**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.044**	0.044
0990_BIOAFA467_231024	24 Oct 2023	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.027**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.027**	0.027
0990_BIOAFA468_231024	24 Oct 2023	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.073**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.073**	0.073
0990_BIOAFA469_231024	24 Oct 2023	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.042**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.042**	0.042
0990_BIOAFA470_231024	24 Oct 2023	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.100**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.100**	0.100
0990_BIOAFA471_231024	24 Oct 2023	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.074**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.074**	0.074
0990_BIOAFA472_231024	24 Oct 2023	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.128**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.128**	0.128
0990_BIOAFA473_231024	24 Oct 2023	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	**0.050**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.050**	0.050
0990_BIOAFA474_231024	24 Oct 2023	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	**0.092**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.092**	0.092
0990_BIOAFA475_231024	24 Oct 2023	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	**0.114**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.114**	0.114
0990_BIOAFA476_231024	24 Oct 2023	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	**0.174**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.174**	0.174
0990_BIOAFA477_231024	24 Oct 2023	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	0.001	<0.001	**0.086**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.087**	0.087
0990_BIOAFA478_231024	24 Oct 2023	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.144**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.144**	0.144
0990_BIOAFA479_231024	24 Oct 2023	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.150**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.150**	0.150
0990_BIOAFA480_231024	24 Oct 2023	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.134**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.134**	0.134

Table T5
Current and Historical Biota Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T5 - Current and Historical Biota Analytical Results

						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)	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)	Sum of PFOS and PFHxS	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
	0990_BIOAFA481_231024	24 Oct 2023	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.189	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.189	0.189
	0990_BIOAFA482_231024	24 Oct 2023	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.029	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.030	0.030
	0990_BIOAFA483_231024	24 Oct 2023	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.016	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.017	0.017
	0990_BIOAFA484_231024	24 Oct 2023	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.027	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.028	0.028
BIO088	0990_FH187_170926	26 Sep 2017	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.022	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.022	0.022
	0990_FH188_170926	26 Sep 2017	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.021	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.021	0.021
	0990_FH191_170926	26 Sep 2017	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.014	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.014	0.014
	0990_FH193_170926	26 Sep 2017	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.042	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.042	0.043
	0990_FH197_170926	26 Sep 2017	Fish	Butler's Grunter whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.012	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.012	0.012
	0990_FH199_170926	26 Sep 2017	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.017	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.017	0.017
	0990_FH202_170926	26 Sep 2017	Fish	Blue Catfish fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0092	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0092	0.0092
	0990_FH203_170926	26 Sep 2017	Fish	Blue Catfish fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0062	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0062	0.0062
	0990_FH206_170926	26 Sep 2017	Fish	Blue Catfish fillet	Primary	<0.0005	<0.0005	0.0003	<0.0005	0.035	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0353	0.0359
	0990_FH212_170926	26 Sep 2017	Fish	Blue Catfish fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.022	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	0.0026	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.022	0.0255
	0990_FH224_170926	26 Sep 2017	Fish	Mullet whole minus liver	Primary	<0.0005	<0.0005	0.0012	0.0008	0.35	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.3512	0.352
	0990_FH225_170926	26 Sep 2017	Fish	Barramundi fillet	Primary	<0.0005	0.0006	0.006	0.004	1.4	<0.0005	0.0008	0.0005	0.0005	0.0005	0.0007	<0.0005	0.0008	0.0006	<0.0005	<0.0005	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	<0.0005	0.0018	1.406	1.4187
	0990_FH226_170926	26 Sep 2017	Fish	Mullet whole minus liver	Primary	<0.0005	<0.0005	0.0004	<0.0005	0.17	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1704	0.1704
	0990_FH228_170926	26 Sep 2017	Fish	Bony Bream whole minus liver	Primary	<0.0005	<0.0005	0.0007	<0.0005	0.1	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1007	0.1007
	0990_FH230_170926	26 Sep 2017	Fish	Bony Bream whole	Primary	<0.0005	<0.0005	0.0015	0.0008	0.19	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1915	0.1923
	0990_FH235_170926	26 Sep 2017	Fish	Barramundi fillet	Primary	<0.0005	<0.0005	0.0038	0.002	0.44	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	0.0006	<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	<0.0005	<0.0005	0.4438	0.4469
	0990_FH236_170926	26 Sep 2017	Fish	Archerfish whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.066	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.066	0.066
	0990_FH239_170926	26 Sep 2017	Fish	Butler's Grunter whole minus liver	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.09	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.09	0.09
	0990_FH241_170926	26 Sep 2017	Fish	Butler's Grunter whole minus liver	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.049	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.049	0.049
	0990_FH245_170926	26 Sep 2017	Fish	Cherabin whole	Primary	<0.0005	<0.0005	0.0032	0.0009	0.087	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0902	0.0911
	0990_FH246_170826	26 Sep 2017	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.024	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.024	0.024
	0990_FH247_170926	26 Sep 2017	Fish	Sooty Grunter fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.041	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.041	0.041
	0990_FH250_170926	26 Sep 2017	Fish	Archerfish fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.019	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.019	0.019
	0990_FH253_170926	26 Sep 2017	Fish	Archerfish whole minus liver	Primary	<0.0005	<0.0005	0.0009	0.0005	0.081	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0819	0.0824
	0990_FH257_170926	26 Sep 2017	Fish	Blue Catfish whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.044	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0015	<0.0005	0.0028	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.044	0.0483
	0990_FH260_170926	26 Sep 2017	Fish	Blue Catfish whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.11	0.1112
	0990_FH261_170926	26 Sep 2017	Fish	Spangled Perch whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.16	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.16	0.16
	0990_FHC14_170926	26 Sep 2017	Fish	Barramundi liver	Primary	<0.0005	<0.0005	0.0013	0.0016	0.17	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1713	0.1749
	0990_FHC15_170926	26 Sep 2017	Fish	Barramundi liver	Primary	<0.0005	<0.0005	0.0013	0.0035	0.27	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0013	0.0006	0.0034	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.2713	0.2801
	0990_FHC16_170926	26 Sep 2017	Fish	Blue Catfish liver	Primary	<0.0005	<0.0005	0.002	0.0009	0.21	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0022	0.0009	0.0071	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.212	0.2231
	0990_FHC17_170926	26 Sep 2017	Fish	Blue Catfish fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0019	0.0009	0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.012	0.0248
	0990_FHC18_170926	26 Sep 2017	Fish	Mullet liver	Primary	<0.0005	<0.0005	0.0027	0.003	0.77	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.7727	0.7757
	0990_FHC20_170926	26 Sep 2017	Fish	Mullet fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.048	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.048	0.048
	0990_FHC21_170926	26 Sep 2017	Fish	Mullet fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.081	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.081	0.081
	0990_FHC23_170926	26 Sep 2017	Fish	Archerfish whole	Primary	<0.0005	<0.0005	0.0006	<0.0005	0.11	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.1106	0.1106
	0990_FH532_180418	18 Apr 2018	Fish	Cherabin whole	Primary	<0.0005	<0.0005	0.0005	<0.0005	0.0097	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0102	0.0102
	0990_FH533_180418	18 Apr 2018	Fish	Cherabin whole	Primary	<0.0005	<0.0005	0.0006	<0.0005	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	0.0056	0.0081
	0990_FH534_180418	18 Apr 2018	Fish	Bony bream whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0054	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0054	0.0054
	0990_FH535_180418	18 Apr 2018	Fish	Bony bream gutted whole	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.012	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.012	0.012
	0990_FH566_181217	17 Dec 2018	Crustacean	Chearbin whole	Primary	<0.0005	<0.0005	0.0013	0.0005	0.041	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.0423	0.0428
	0990_FH567_181217	17 Dec 2018	Crustacean	Cherabin whole	Primary	<0.0005	<0.0005	0.001	<0.0005	0.017	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.018	0.018
	0990_FH568_181217	17 Dec 2018	Fish	Barramundi flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.029	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.029	0.029
	0990_FH570_181217	17 Dec 2018	Fish	Barramundi flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.042	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.042	0.0425
	0990_FH571_181217	17 Dec 2018	Fish	Barramundi flesh, right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.048	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.048	0.0486
	0990_FH572_181217	17 Dec 2018	Fish	Barramundi flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.024	0.024
	0990_FH573_181217	17 Dec 2018	Fish	Barramundi flesh, right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.03	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.03	0.03
	0990_FH575_181217	17 Dec 2018	Fish	Barramundi flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.086	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.086	0.086
	0990_FH576_181217	17 Dec 2018	Fish	Black Catfish flesh, left fillet	Primary	<0.0005	<0.0005	0.002	0.0008	0.082	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.0005	0.0009	<0.0005	0.0046	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.084	0.0903
	0990_FH577_181217	17 Dec 2018	Fish	Blue Catfish flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.014	0.0147
	0990_FH578_181217	17 Dec 2018	Fish	Blue Catfish flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0075	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.0075	0.0075
	0990_FH579_181217	17 Dec 2018	Fish	Blue Catfish whole minus guts	Primary	<0.0005	<0.0005	0.0014	0.0019	0.32	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.3214	0.3233
	0990_FH580_181217	17 Dec 2018	Fish	Mullet flesh, left fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.11	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.11	0.11
	0990_FH582_181217	17 Dec 2018	Fish	Butler's Grunter flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.013	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.013	0.013
	0990_FH583_181217	17 Dec 2018	Fish	Bony Bream flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.0074	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.0074	0.0074
	0990_FH584_181217	17 Dec 2018	Fish	Bony Bream flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.035	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.035	0.035
	0990_FH585_181217	17 Dec 2018	Fish	Bony Bream flesh, left and right fillet	Primary	<0.0005	<0.0005	<0.0003	<0.0005	0.027	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.027	0.027
	0990_FH565_181218	18 Dec 2018	Crustacean	Cherabin whole	Primary	<0.0005	<0.0005	0.0009	<0.0005	0.018	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<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	<0.0005	<0.0005	0.0189	0.0189
	0990_BIOAFA150_191118	18 Nov 2019	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
	0990_QC101_191118	18 Nov 2019	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
	0990_BIOAFA151_191118	18 Nov 2019	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.012	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.012	0.012
	0990_BIOAFA152_191118	18 Nov 2019	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.017	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.017	0.02
	0990_BIOAFA153_191118	18 Nov 2019	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	0.001	<0.001	0.025	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.013	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.026	0.039
	0990_BIOAFA154_191118	18 Nov 2019	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	0.001	<0.001	0.014	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.021	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.015	0.036
	0990_BIOAFA156_191118	18 Nov 2019	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	0.010	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.010	0.016
	0990_BIOAFA158_191118	18 Nov 2019	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	0.002	<0.001	0.038	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.040	0.045
	0990_QC103_191118	18 Nov 2019	Fish	Blue Catfish (Neoarius graeffei)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
	0990_BIOAFA163_191118	18 Nov 2019	Fish	Giant Gudgeon (Oxyeleotris selheimi)	Primary	<0.001	<0.001	<0.001	<0.001	0.032	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.008	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.032	0.04
	0990_BIOAFA164_191118	18 Nov 2019	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	0.016	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.016	0.02
	0990_BIOAFA165_191118	18 Nov 2019	Fish	Tarpon (Megalops cyprinoides)	Primary	<0.001	<0.001	<0.001	<0.001	0.023	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.023	0.026
	0990_BIOAFA166_191118	18 Nov 2019	Fish	Tarpon (Megalops cyprinoides)	Primary	<0.001	<0.001	0.001	<0.001	0.062	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.063	0.069
	0990_BIOAFA167_191118	18 Nov 2019	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.010	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.01	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.010	0.02
	0990_BIOAFA168_191118	18 Nov 2019	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.064	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.064	0.066
	0990_QC104_191118	18 Nov 2019	Fish	Mullet (Planiliza ordensis)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.066	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.066	0.066
	0990_BIOAFA169_191118	18 Nov 2019	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.053	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.053	0.056
	0990_BIOAFA170_191118	18 Nov 2019	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.040	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.040	0.04
	0990_BIOAFA171_191118	18 Nov 2019	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.019	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.019	0.019
	0990_BIOAFA173_191118	18 Nov 2019	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.012	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.012	0.012
	0990_BIOAFA176_191118	18 Nov 2019	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	0.001	<0.001	0.078	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.016	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.079	0.095
	0990_BIOAFA177_191118	18 Nov 2019	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	0.002	0.002	0.540	<0.002	0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.542	0.555
	0990_BIOAFA178_191118	18 Nov 2019	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	0.054	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.054	0.057
	0990_BIOAFA179_191118	18 Nov 2019	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	0.301	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.301	0.301
	0990_BIOAFA247_200708	08 Jul 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.002	<0.002	<0.002	<0.002	0.006	<0.002	<0.005	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	0.027	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.035
	0990_QC115_200708	08 Jul 2020	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.023	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.008	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.023	0.031
	0990_BIOAFA248_200708	08 Jul 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.017	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.021	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.017	0.038
	0990_QC116_200708	08 Jul 2020	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.007	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.008	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.007	0.015
	0990_BIOAFA249_200708	08 Jul 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.026	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.012	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.026	0.038
	0990_BIOAFA250_200708	08 Jul 2020	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.031	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.006	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.031	0.037
	0990_BIOAFA251_200708	08 Jul 2020	Fish	Mullet (Planiliza ordensis)	Primary	<0.002	<0.002	<0.002	<0.002	0.022	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	0.004	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.026
	0990_BIOAFA252_200708	08 Jul 2020	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.014	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.011	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.014	0.025
	0990_BIOAFA259_200708	08 Jul 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.017	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.008	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.017	0.025
	0990_BIOAFA260_200708	08 Jul 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.015	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.014	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.015	0.029
	0990_BIOAFA261_200708	08 Jul 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.016	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.016	0.016
	0990_BIOAFA262_200708	08 Jul 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.005	<0.001	0.045	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.050	0.05
	0990_BIOAFA263_200708	08 Jul 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.004	<0.001	0.032	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.016	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.036	0.052
	0990_BIOAFA264_200708	08 Jul 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.003	<0.001	0.022	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	0.012	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.025	0.037
	0990_BIOAFA305_201110	10 Nov 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.002	<0.002	<0.002	<0.002	0.012	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.012
	0990_QC125_201110	10 Nov 2020	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.020	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.020	0.02
	0990_BIOAFA306_201110	10 Nov 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.002	<0.002	<0.002	<0.002	0.044	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.044
	0990_QC126_201110	10 Nov 2020	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.012	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.012	0.012
	0990_BIOAFA307_201110	10 Nov 2020	Fish	Barramundi (Lates calcarifer)	Primary	<0.002	<0.002	<0.002	<0.002	0.022	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.022
	0990_BIOAFA309_201110	10 Nov 2020	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.002	<0.002	<0.002	<0.002	0.047	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.047
	0990_BIOAFA310_201110	10 Nov 2020	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.002	<0.002	<0.002	<0.002	0.160	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.16
	0990_BIOAFA313_201110	10 Nov 2020	Fish	Black Catfish (Neosilurus ater)	Primary	<0.002	<0.002	<0.002	<0.002	0.038	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.038
	0990_BIOAFA314_201110	10 Nov 2020	Fish	Black Catfish (Neosilurus ater)	Primary	<0.002	<0.002	<0.002	<0.002	0.123	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.123
	0990_BIOAFA316_201110	10 Nov 2020	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.002	<0.002	<0.002	<0.002	0.031	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.031
	0990_BIOAFA317_201110	10 Nov 2020	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.002	<0.002	<0.002	<0.002	0.025	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.025
	0990_BIOAFA320_201110	10 Nov 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.002	<0.002	<0.002	<0.002	0.045	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.045
	0990_BIOAFA321_201110	10 Nov 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.002	<0.002	<0.002	<0.002	0.029	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.029
	0990_BIOAFA322_201110	10 Nov 2020	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.002	<0.002	<0.002	<0.002	0.032	<0.002	<0.005	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.035
	0990_BIOAFA324_201110	10 Nov 2020	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.002	<0.002	<0.002	<0.002	0.012	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.012
	0990_BIOAFA325_201110	10 Nov 2020	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.002	<0.002	<0.002	<0.002	0.019	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	<0.001	0.019
	0990_BIOAFA327_201110	10 Nov 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.002	<0.002	0.003	<0.002	0.091	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	0.094	0.094
	0990_BIOAFA328_201110	10 Nov 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.002	<0.002	0.004	<0.002	0.074	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.002	<0.005	<0.005	<0.002	0.078	0.078
	0990_BIOAFA329_201110	10 Nov 2020	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.003	<0.001	0.038	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.041	0.041
	0990_BIOAFA330_201110	10 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	0.023	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.023	0.023
	0990_BIOAFA331_201110	10 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	0.001	0.002	0.192	<0.002	<0.005	<0.002	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.193	0.198
	0990_BIOAFA332_201110	10 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	0.056	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.056	0.056
	0990_BIOAFA333_201110	10 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	<0.001	0.108	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.108	0.108
	0990_BIOAFA334_201110	10 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	<0.001	0.001	0.119	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.119	0.12
	0990_BIOAFA335_201110	10 Nov 2020	Turtle	Northern Red-faced Turtle (Emydura victoriae)	Primary	<0.001	<0.001	0.004	0.004	0.706	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.710	0.714
	0990_BIOAFA360_210602	02 Jun 2021	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
	0990_QC134_210602	02 Jun 2021	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.009	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.009	0.009
	0990_BIOAFA361_210602	02 Jun 2021	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001
	0990_QC135_210602	02 Jun 2021	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
	0990_BIOAFA362_210602	02 Jun 2021	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001
	0990_QC136_210602	02 Jun 2021	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.001	0.001
	0990_BIOAFA363_210602	02 Jun 2021	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
	0990_QC137_210602	02 Jun 2021	Fish	Black Catfish (Neosilurus ater)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001
	0990_BIOAFA364_210602	02 Jun 2021	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
	0990_BIOAFA365_210602	02 Jun 2021	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	0.006	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.006	0.006
	0990_BIOAFA366_210602	02 Jun 2021	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004

Table T5
Current and Historical Biota Analytical Results
PFAS Ongoing Monitoring Plan
Department of Defence - RAAF Base Tindal

T5 - Current and Historical Biota Analytical Results

AECOM

					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)	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)	Sum of PFOS and PFHxS	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
0990_BIOAFA367_210602	02 Jun 2021	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	**0.018**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.018**	0.018
0990_BIOAFA368_210602	02 Jun 2021	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA369_210602	02 Jun 2021	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA370_210602	02 Jun 2021	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA371_210602	02 Jun 2021	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA372_210602	02 Jun 2021	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
0990_BIOAFA373_210602	02 Jun 2021	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.006**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.006**	0.006
0990_BIOAFA374_210602	02 Jun 2021	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA375_210602	02 Jun 2021	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA376_210602	02 Jun 2021	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.001	0.001
0990_BIOAFA377_210602	02 Jun 2021	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA378_210602	02 Jun 2021	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	0.006	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.001	0.007
0990_BIOAFA379_210602	02 Jun 2021	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA380_210602	02 Jun 2021	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA381_210602	02 Jun 2021	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA382_210602	02 Jun 2021	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.001	0.001
0990_BIOAFA383_210602	02 Jun 2021	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001
0990_BIOAFA384_210602	02 Jun 2021	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.002	0.002
0990_BIOAFA385_210602	02 Jun 2021	Turtle	Painted Turtle (Emydura subglobosa worrelli)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA386_210602	02 Jun 2021	Turtle	Painted Turtle (Emydura subglobosa worrelli)	Primary	<0.001	<0.001	<0.001	<0.001	0.022	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.022	0.022
0990_BIOAFA387_210602	02 Jun 2021	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	0.006	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.006	0.006
0990_BIOAFA388_210602	02 Jun 2021	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	0.054	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.054	0.054
0990_BIOAFA389_210602	02 Jun 2021	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	0.009	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.009	0.009
0990_BIOAFA390_210602	02 Jun 2021	Turtle	Diamond-head Turtle (Emydura subglobosa)	Primary	<0.001	<0.001	<0.001	<0.001	0.032	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.032	0.032
0990_BIOAFA391_221027	27 Oct 2022	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.020**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.020**	0.02
0990_QC139_221027	27 Oct 2022	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.025**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.025**	0.025
0990_BIOAFA392_221027	27 Oct 2022	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.026**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.026**	0.026
0990_QC140_221027	27 Oct 2022	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.035**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.035**	0.035
0990_BIOAFA393_221027	27 Oct 2022	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.011**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.011**	0.011
0990_QC141_221027	27 Oct 2022	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.011**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.011**	0.011
0990_BIOAFA394_221027	27 Oct 2022	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.016**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.016**	0.016
0990_QC142_221027	27 Oct 2022	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.025**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.025**	0.025
0990_BIOAFA395_221027	27 Oct 2022	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	**0.009**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.009**	0.009
0990_BIOAFA396_221027	27 Oct 2022	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	**0.009**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.009**	0.009
0990_BIOAFA397_221027	27 Oct 2022	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	**0.039**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.039**	0.039
0990_BIOAFA398_221027	27 Oct 2022	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	0.003	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.003	0.003
0990_BIOAFA399_221027	27 Oct 2022	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	**0.006**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.006**	0.006
0990_BIOAFA400_221027	27 Oct 2022	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.007
0990_BIOAFA401_221027	27 Oct 2022	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.033**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.033**	0.033
0990_BIOAFA402_221027	27 Oct 2022	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.007**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.007**	0.007
0990_BIOAFA403_221027	27 Oct 2022	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.009**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.009**	0.009
0990_BIOAFA404_221027	27 Oct 2022	Fish	Archerfish (Toxotes chatareus)	Primary	<0.001	<0.001	<0.001	<0.001	**0.009**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.009**	0.009
0990_BIOAFA405_221027	27 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
0990_BIOAFA406_221027	27 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.006**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.006**	0.006
0990_BIOAFA407_221027	27 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	0.004	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.004	0.004
0990_BIOAFA408_221027	27 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	0.005	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.005	0.005
0990_BIOAFA409_221027	27 Oct 2022	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.073**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.073**	0.073
0990_BIOAFA410_221027	27 Oct 2022	Fish	Mullet (Planiliza ordensis)	Primary	<0.001	<0.001	<0.001	<0.001	**0.023**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.023**	0.023
0990_BIOAFA411_221027	27 Oct 2022	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.041	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.041	0.041
0990_BIOAFA412_221027	27 Oct 2022	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.001	<0.001	0.057	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.058	0.058
0990_BIOAFA413_221027	27 Oct 2022	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.019	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.019	0.019
0990_BIOAFA441_231024	23 Oct 2023	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.032**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.032**	0.032
0990_QC148_231023	23 Oct 2023	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.029**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.029**	0.029
0990_BIOAFA442_231023	23 Oct 2023	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.098**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.098**	0.098
0990_QC149_231023	23 Oct 2023	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.110**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.11**	0.11
0990_BIOAFA443_231023	23 Oct 2023	Fish	Barramundi (Lates calcarifer)	Primary	<0.001	<0.001	<0.001	<0.001	**0.032**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.032**	0.032
0990_QC150_231023	23 Oct 2023	Fish	Barramundi (Lates calcarifer)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.033**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.033**	0.033
0990_BIOAFA444_231023	23 Oct 2023	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	**0.013**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.013**	0.013
0990_QC151_231023	23 Oct 2023	Fish	Blue Catfish (Neoarius graeffei)	Intra-lab Duplicate	<0.001	<0.001	<0.001	<0.001	**0.009**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.009**	0.009
0990_BIOAFA445_231023	23 Oct 2023	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	**0.023**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.023**	0.023
0990_BIOAFA446_231023	23 Oct 2023	Fish	Blue Catfish (Neoarius graeffei)	Primary	<0.001	<0.001	<0.001	<0.001	**0.040**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.04**	0.04
0990_BIOAFA447_231023	23 Oct 2023	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.019**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.019**	0.019
0990_BIOAFA448_231023	23 Oct 2023	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.079**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.079**	0.079
0990_BIOAFA449_231023	23 Oct 2023	Fish	Bony Bream (Nematalosa erebi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.038**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.038**	0.038
0990_BIOAFA450_231023	23 Oct 2023	Fish	Sleepy Cod (Oxyeleotris lineolata)	Primary	<0.001	<0.001	<0.001	<0.001	**0.027**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.027**	0.027
0990_BIOAFA451_231023	23 Oct 2023	Fish	Sooty Grunter / Black Bream (Hephaestus fuliginosus)	Primary	<0.001	<0.001	<0.001	<0.001	**0.042**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.042**	0.042
0990_BIOAFA452_231023	23 Oct 2023	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.074**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.074**	0.074
0990_BIOAFA453_231023	23 Oct 2023	Fish	Butler's Grunter (Syncomistes butleri)	Primary	<0.001	<0.001	<0.001	<0.001	**0.027**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.027**	0.027
0990_BIOAFA454_231023	23 Oct 2023	Fish	Black Catfish (Neosilurus ater)	Primary	<0.001	<0.001	<0.001	<0.001	**0.110**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.11**	0.11
0990_BIOAFA455_231023	23 Oct 2023	Fish	Berney's Catfish (Neoarius berneyi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.042**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.042**	0.042
0990_BIOAFA456_231023	23 Oct 2023	Fish	Berney's Catfish (Neoarius berneyi)	Primary	<0.001	<0.001	<0.001	<0.001	**0.082**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.082**	0.082
0990_BIOAFA457_231023	23 Oct 2023	Fish	Mullet (Planiliza ordensis)	Normal	<0.001	<0.001	<0.001	<0.001	**0.070**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.07**	0.07
0990_BIOAFA458_231023	23 Oct 2023	Fish	Mullet (Planiliza ordensis)	Normal	<0.001	<0.001	<0.001	<0.001	**0.066**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.066**	0.066
0990_BIOAFA459_231023	23 Oct 2023	Fish	Mullet (Planiliza ordensis)	Normal	<0.001	<0.001	<0.001	<0.001	**0.142**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.142**	0.142
0990_BIOAFA460_231023	23 Oct 2023	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	0.003	<0.001	**0.070**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.073**	0.073
0990_BIOAFA461_231023	23 Oct 2023	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	0.013	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	0.013	0.013
0990_BIOAFA462_231023	23 Oct 2023	Crustacean	Cherabin (Macrobrachium spinipes)	Primary	<0.001	<0.001	<0.001	<0.001	**0.109**	<0.002	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.001	<0.002	<0.002	<0.001	**0.109**	0.109

Notes:

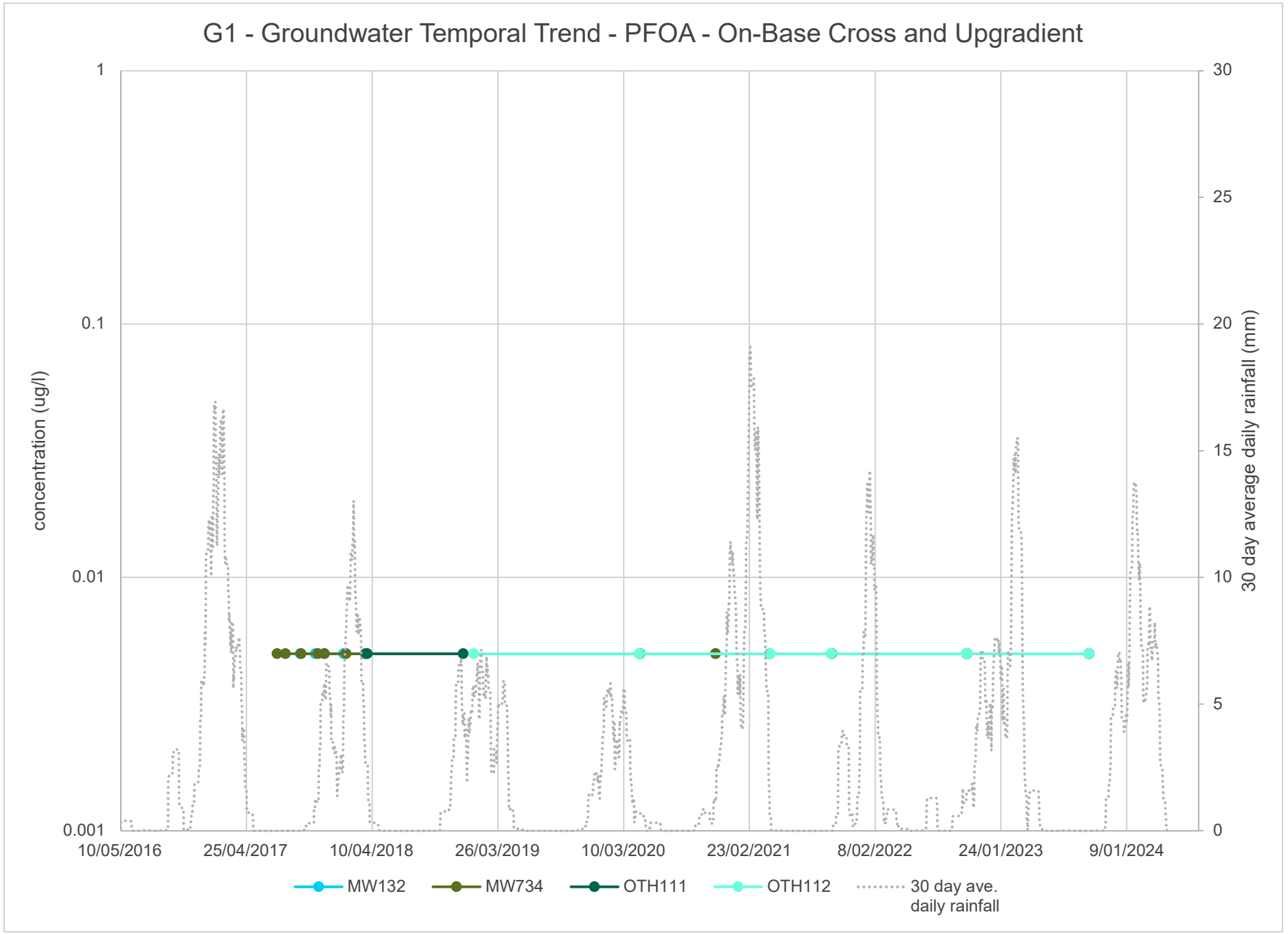
mg/kg = microgram per kilogram

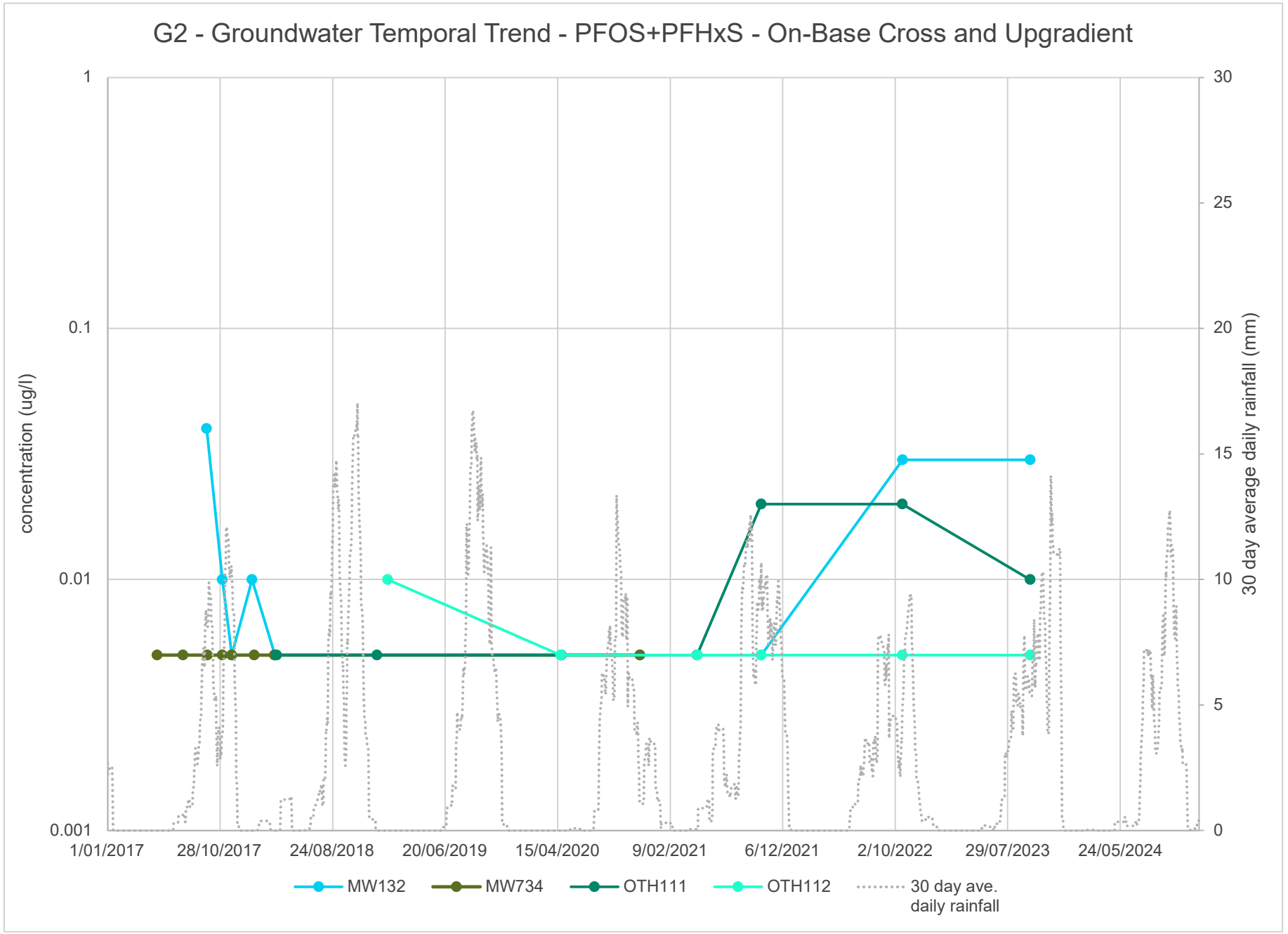
LORs were revised in 2017/2018. This has resulted in reporting limits being increase from 0.0005 to 0.001 mg/kg

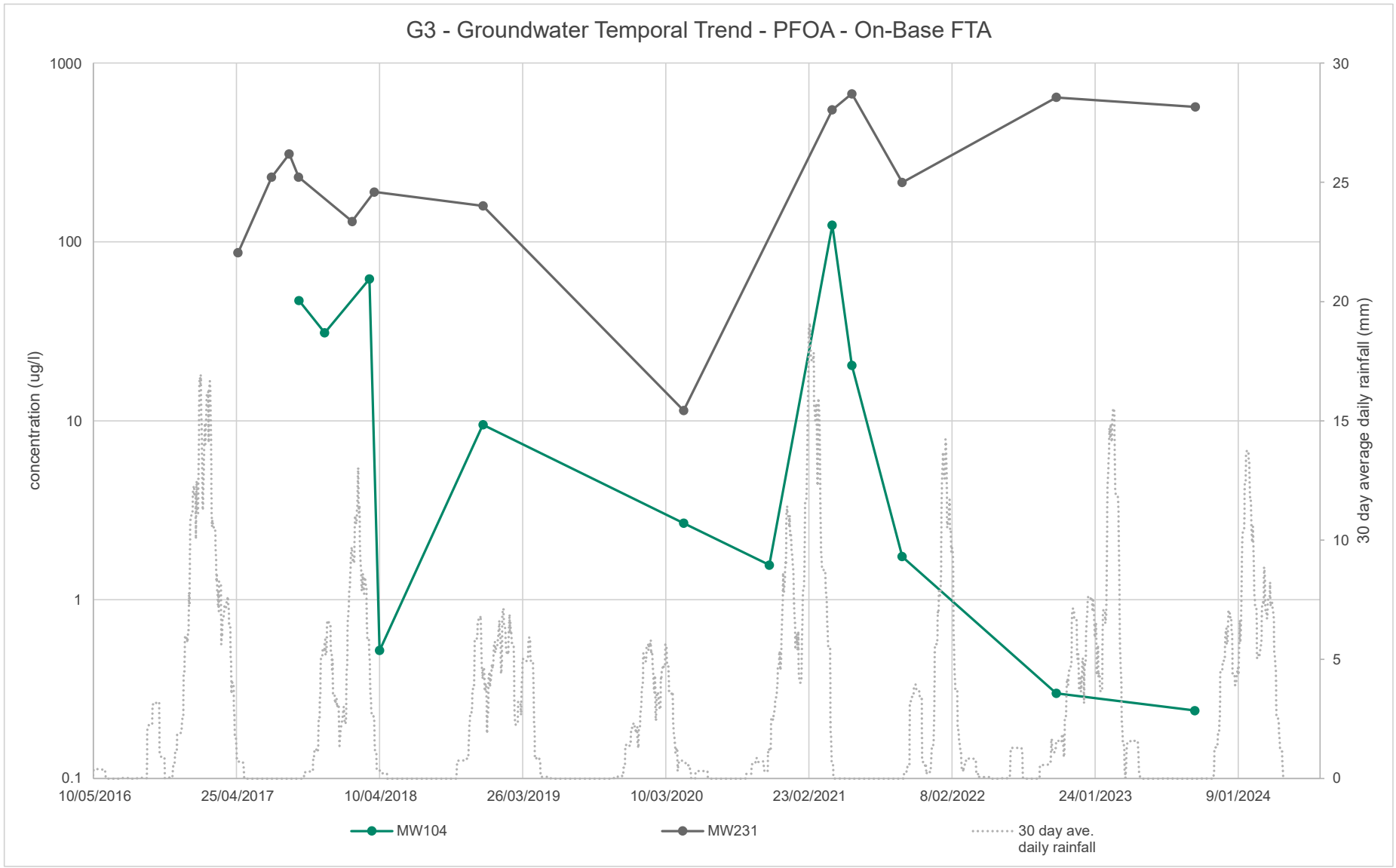
Relevant criteria applied to different species.

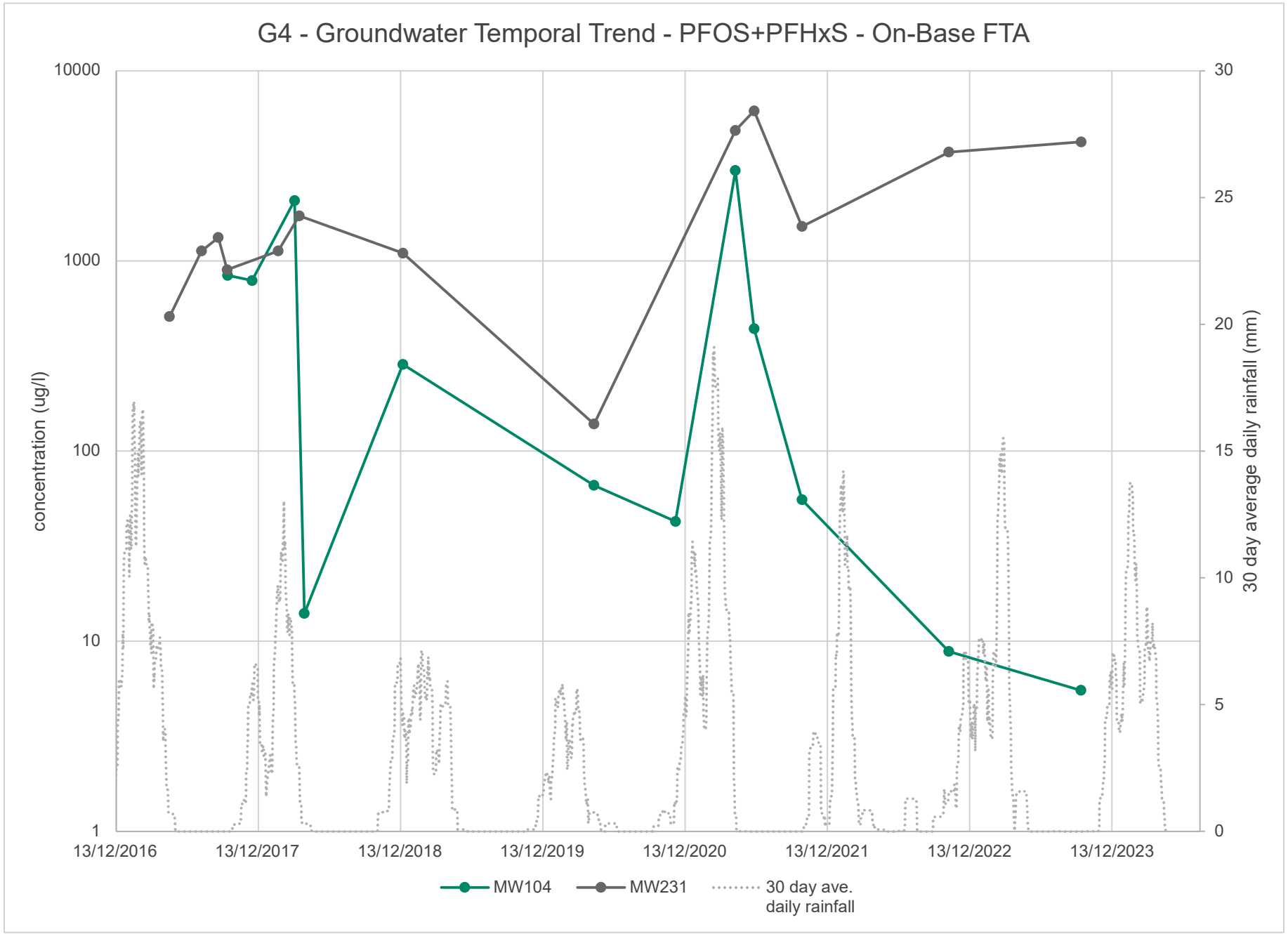
Appendix D

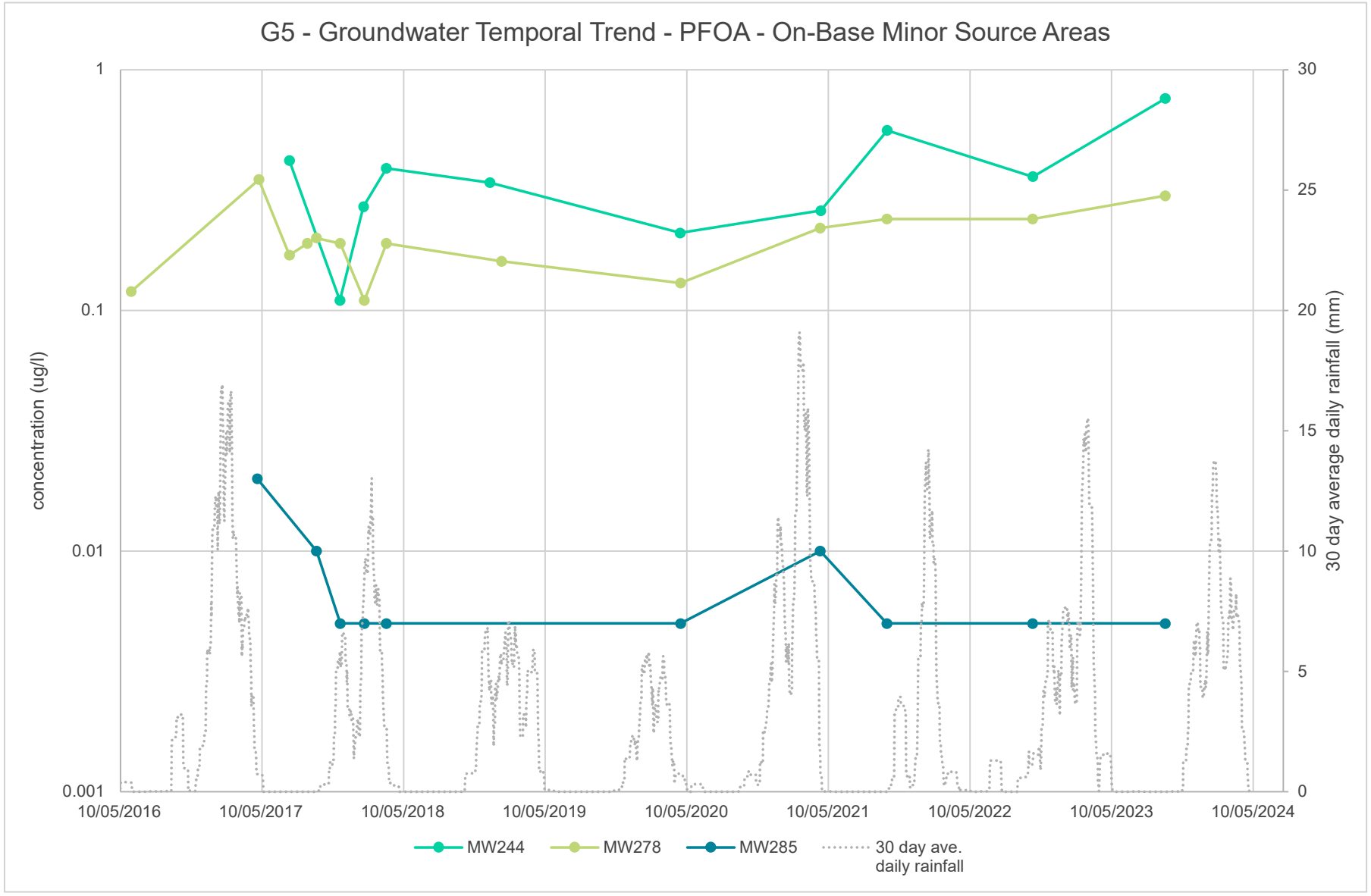
Graphs

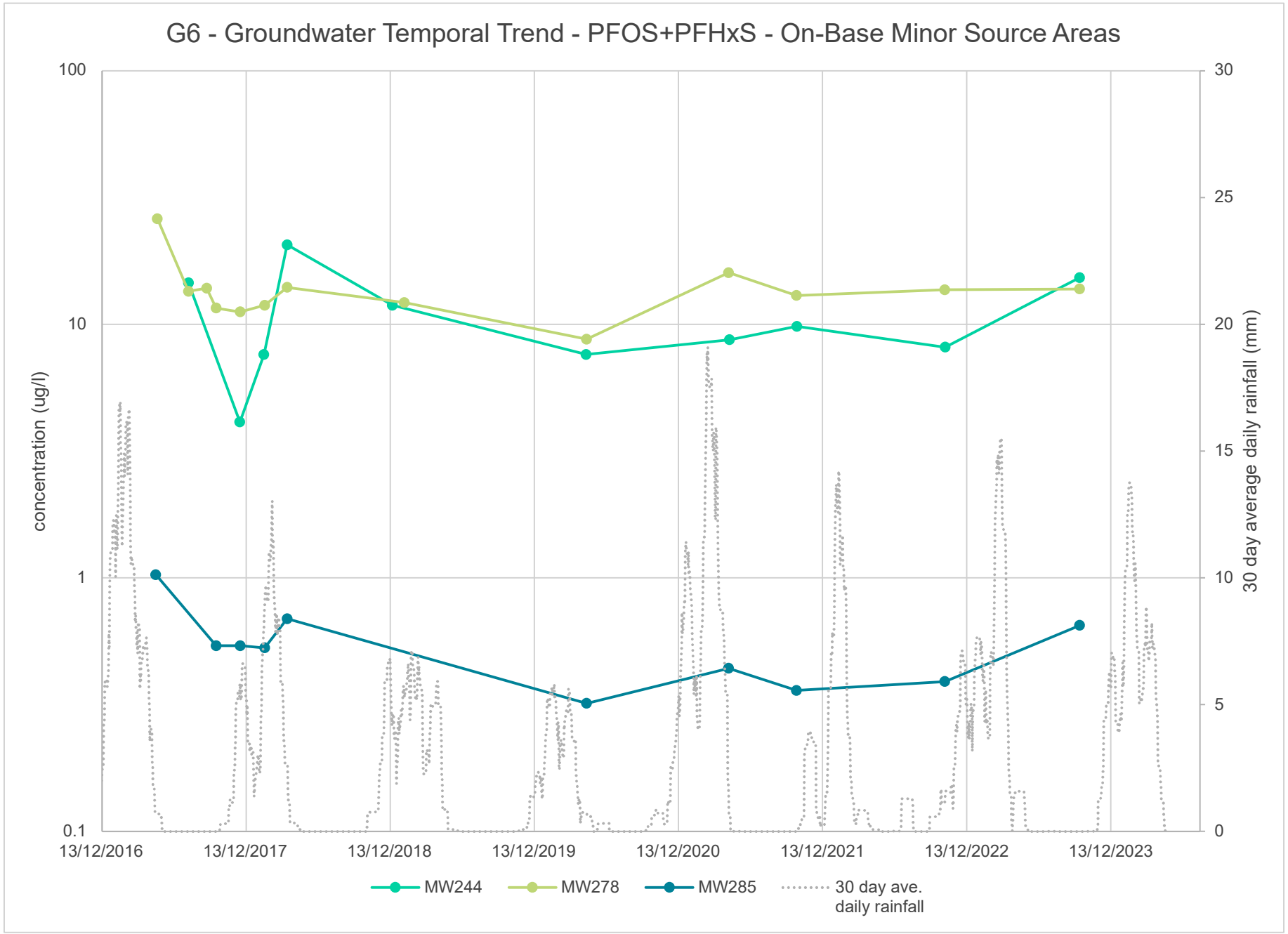

G1 - Groundwater Temporal Trend - PFOA - On-Base Cross and Upgradient
concentration (ug/l)
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
10/05/2016
25/04/2017
10/04/2018
26/03/2019
10/03/2020
23/02/2021
8/02/2022
24/01/2023
9/01/2024
MW132
MW734
OTH111
OTH112
30 day ave. daily rainfall

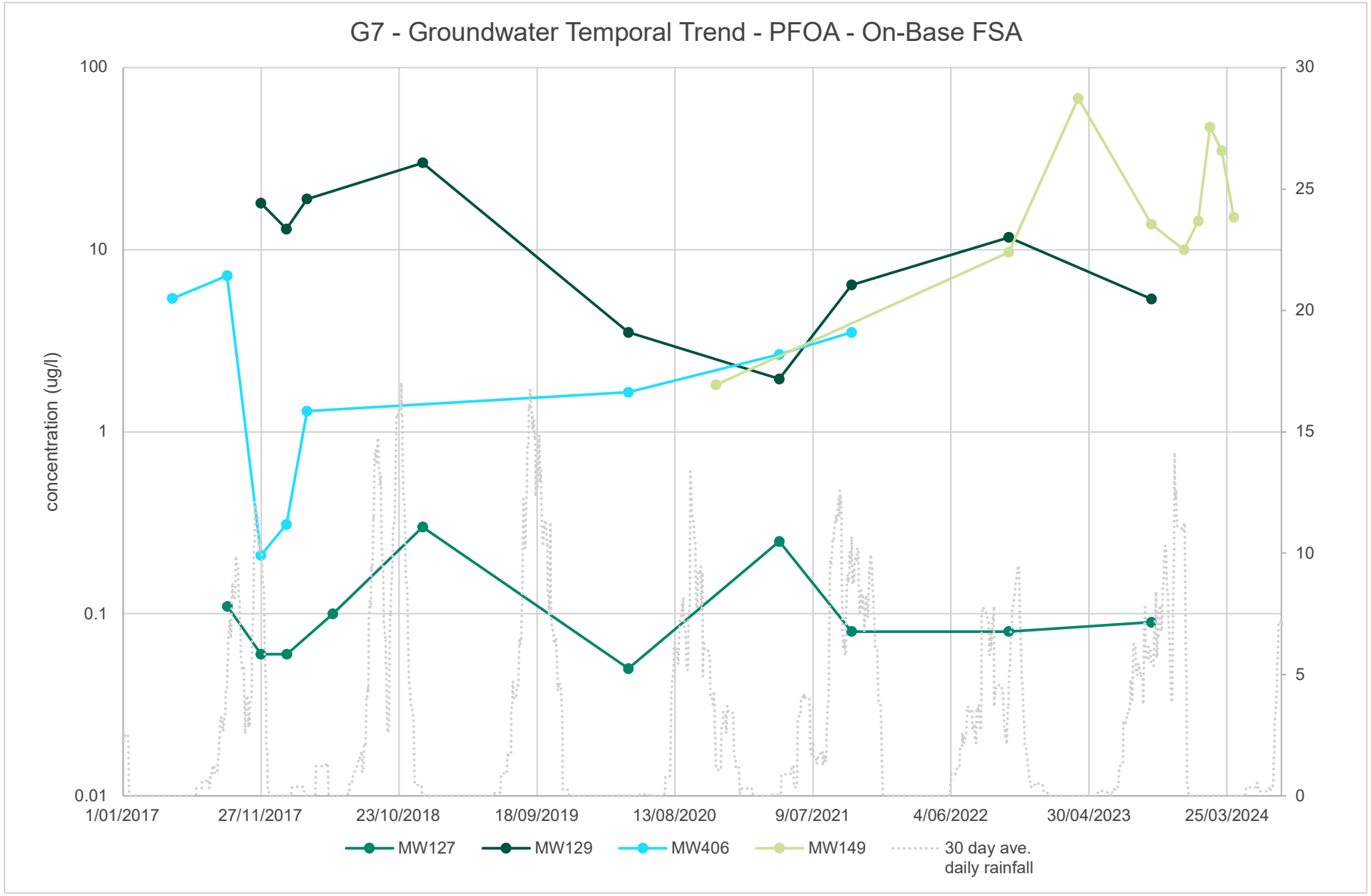

G2 - Groundwater Temporal Trend - PFOS+PFHxS - On-Base Cross and Upgradient
concentration (ug/l)
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
1/01/2017
28/10/2017
24/08/2018
20/06/2019
15/04/2020
9/02/2021
6/12/2021
2/10/2022
29/07/2023
24/05/2024
MW132
MW734
OTH111
OTH112
30 day ave. daily rainfall

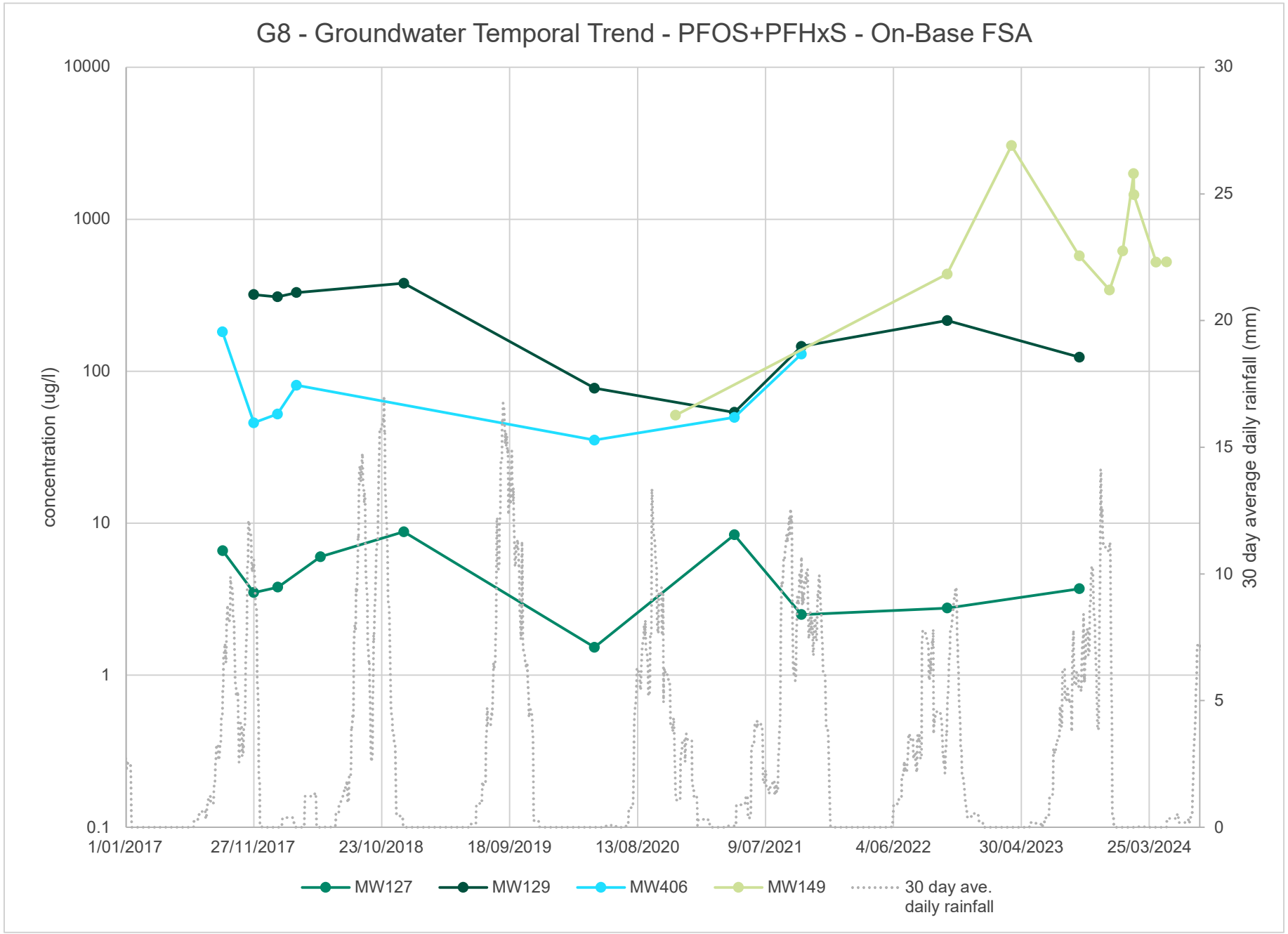

G3 - Groundwater Temporal Trend - PFOA - On-Base FTA
concentration (ug/l)
1000
100
10
1
0.1
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
10/05/2016
25/04/2017
10/04/2018
26/03/2019
10/03/2020
23/02/2021
8/02/2022
24/01/2023
9/01/2024
MW104
MW231
30 day ave. daily rainfall

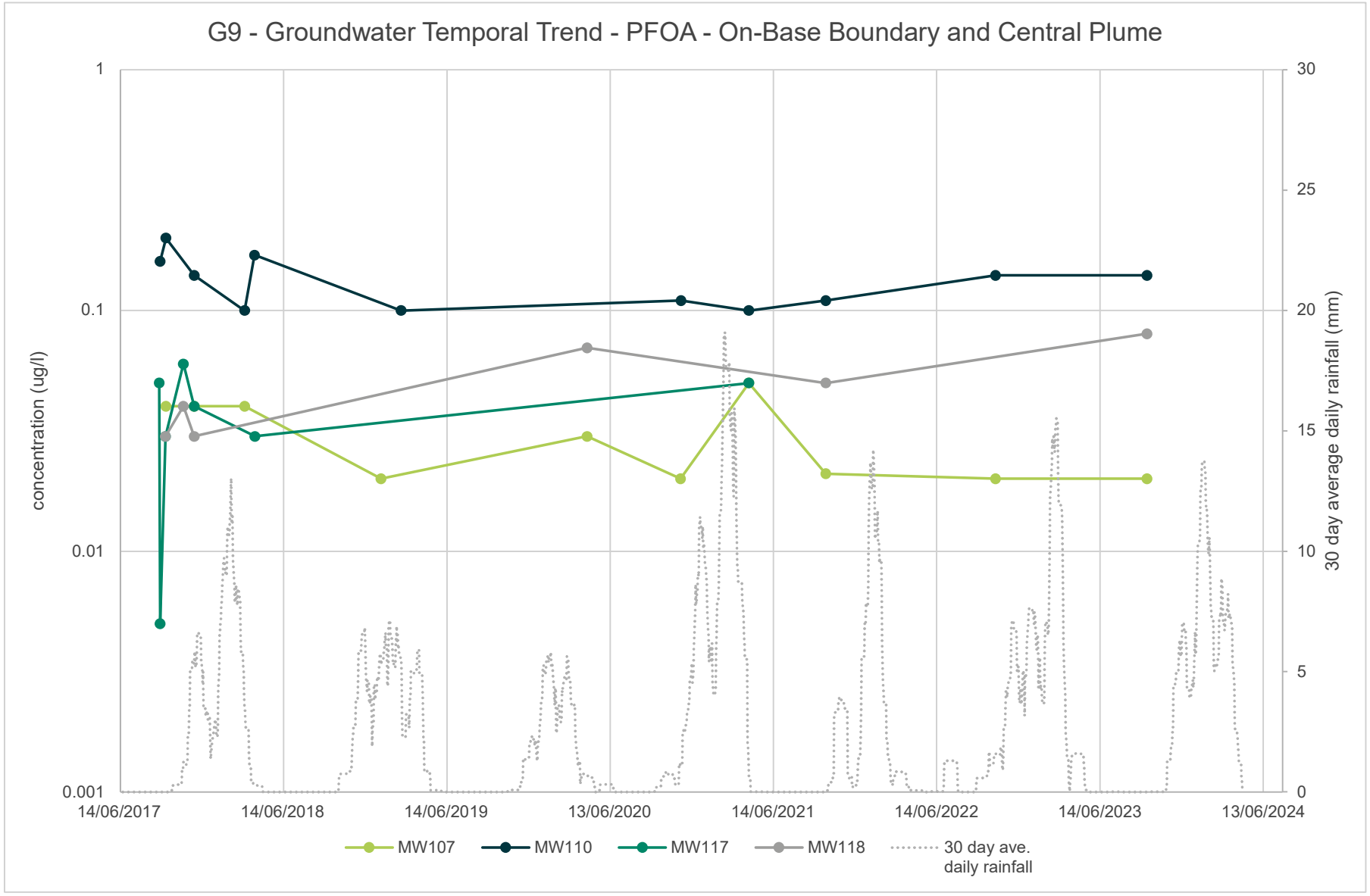

G4 - Groundwater Temporal Trend - PFOS+PFHxS - On-Base FTA
concentration (ug/l)
10000
1000
100
10
1
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
13/12/2016
13/12/2017
13/12/2018
13/12/2019
13/12/2020
13/12/2021
13/12/2022
13/12/2023
MW104
MW231
30 day ave. daily rainfall

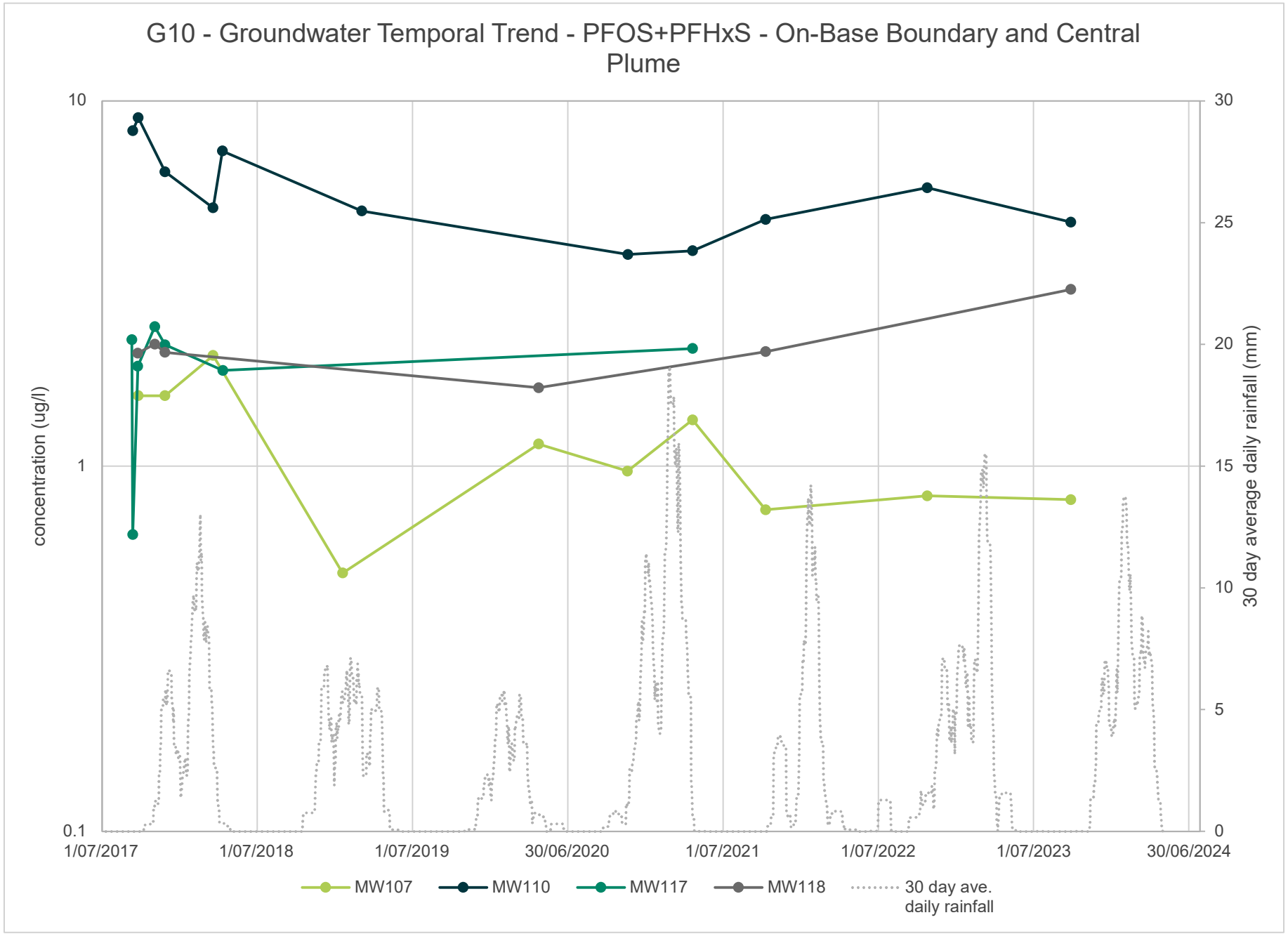

G5 - Groundwater Temporal Trend - PFOA - On-Base Minor Source Areas
concentration (ug/l)
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
10/05/2016
10/05/2017
10/05/2018
10/05/2019
10/05/2020
10/05/2021
10/05/2022
10/05/2023
10/05/2024
MW244
MW278
MW285
30 day ave. daily rainfall

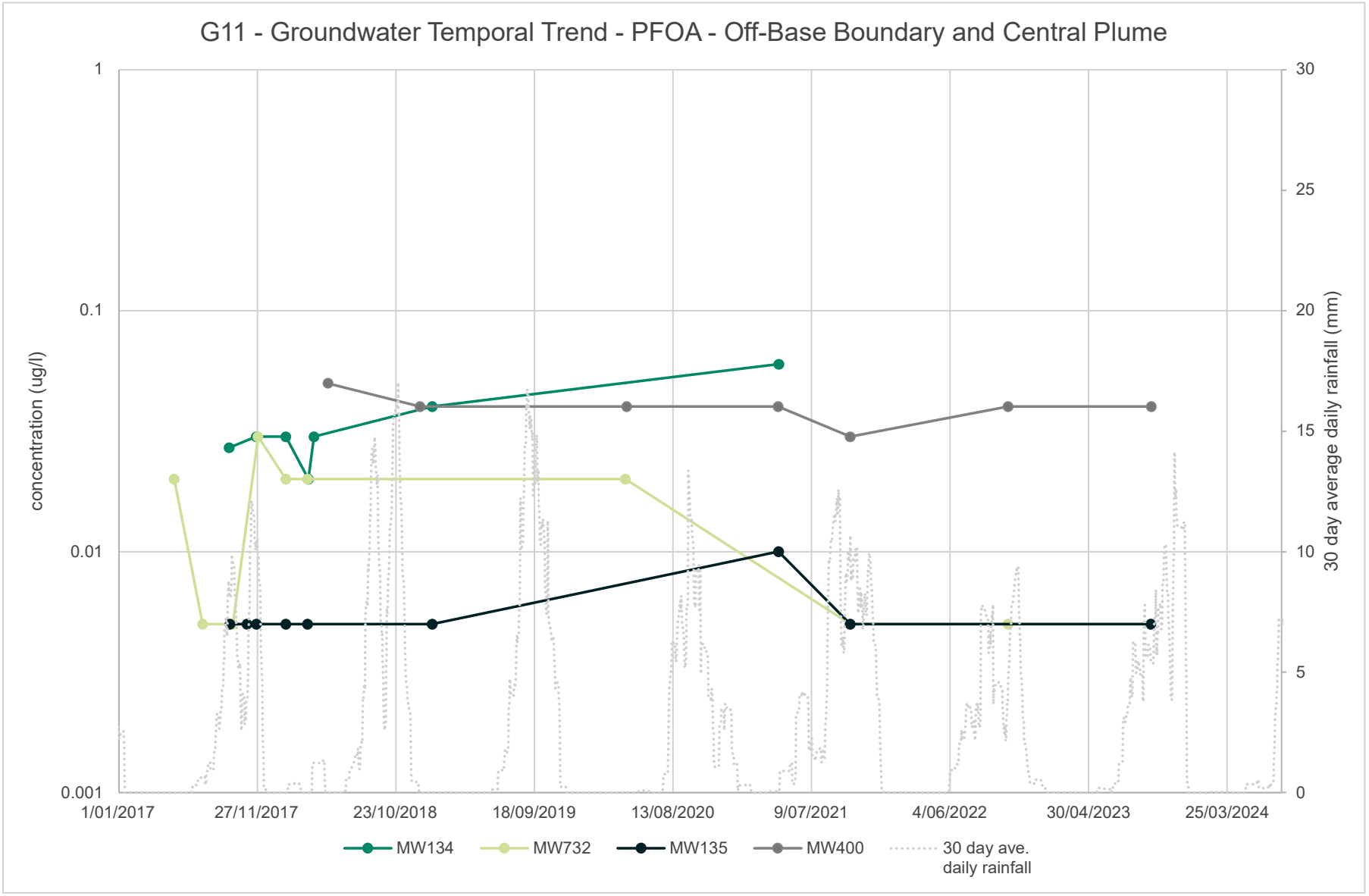

G6 - Groundwater Temporal Trend - PFOS+PFHxS - On-Base Minor Source Areas
concentration (ug/l)
100
10
1
0.1
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
13/12/2016
13/12/2017
13/12/2018
13/12/2019
13/12/2020
13/12/2021
13/12/2022
13/12/2023
MW244
MW278
MW285
30 day ave. daily rainfall

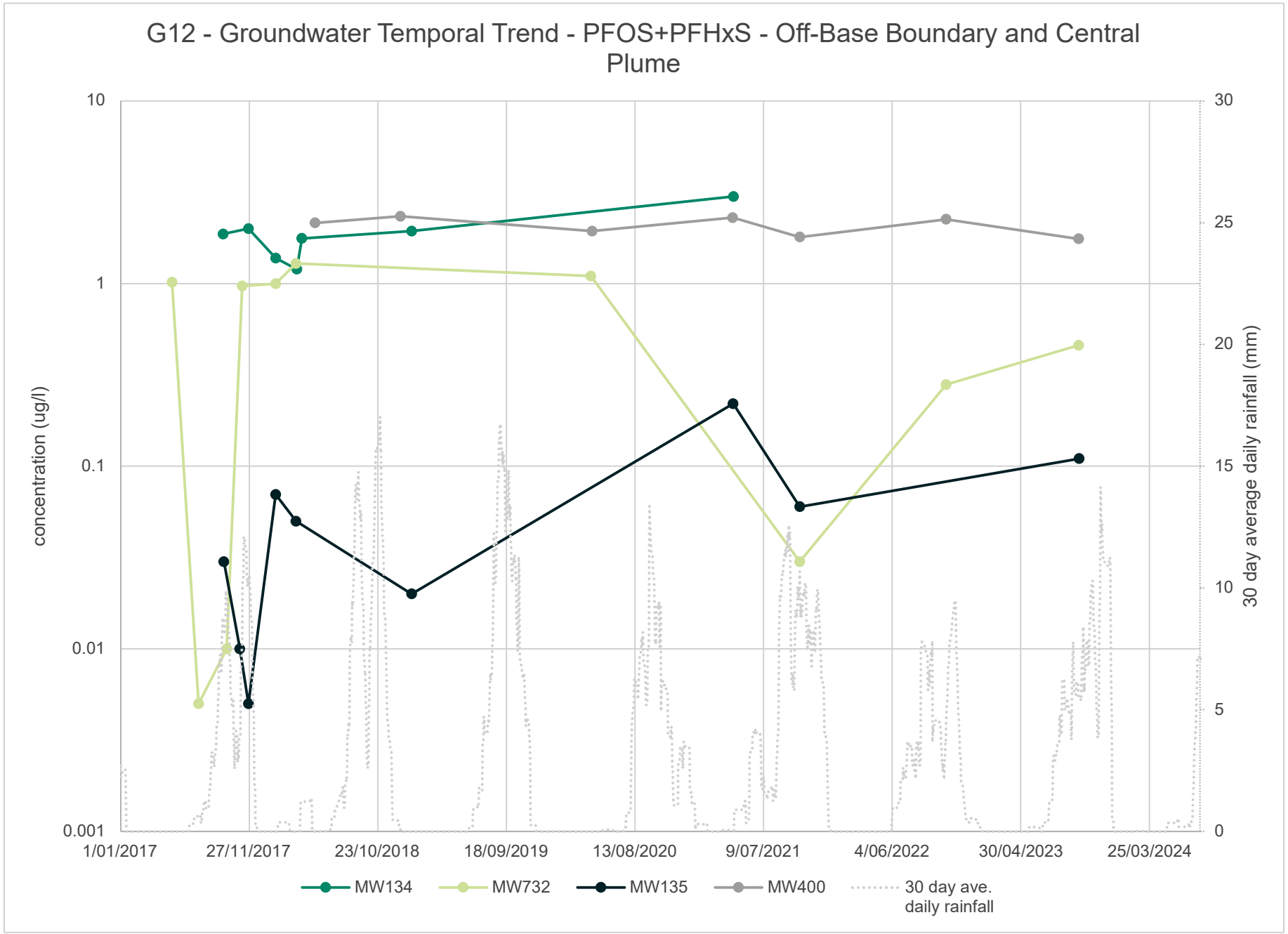

G7 - Groundwater Temporal Trend - PFOA - On-Base FSA
concentration (ug/l)
100
10
1
0.1
0.01
30
25
20
15
10
5
0
1/01/2017
27/11/2017
23/10/2018
18/09/2019
13/08/2020
9/07/2021
4/06/2022
30/04/2023
25/03/2024
MW127
MW129
MW406
MW149
30 day ave. daily rainfall

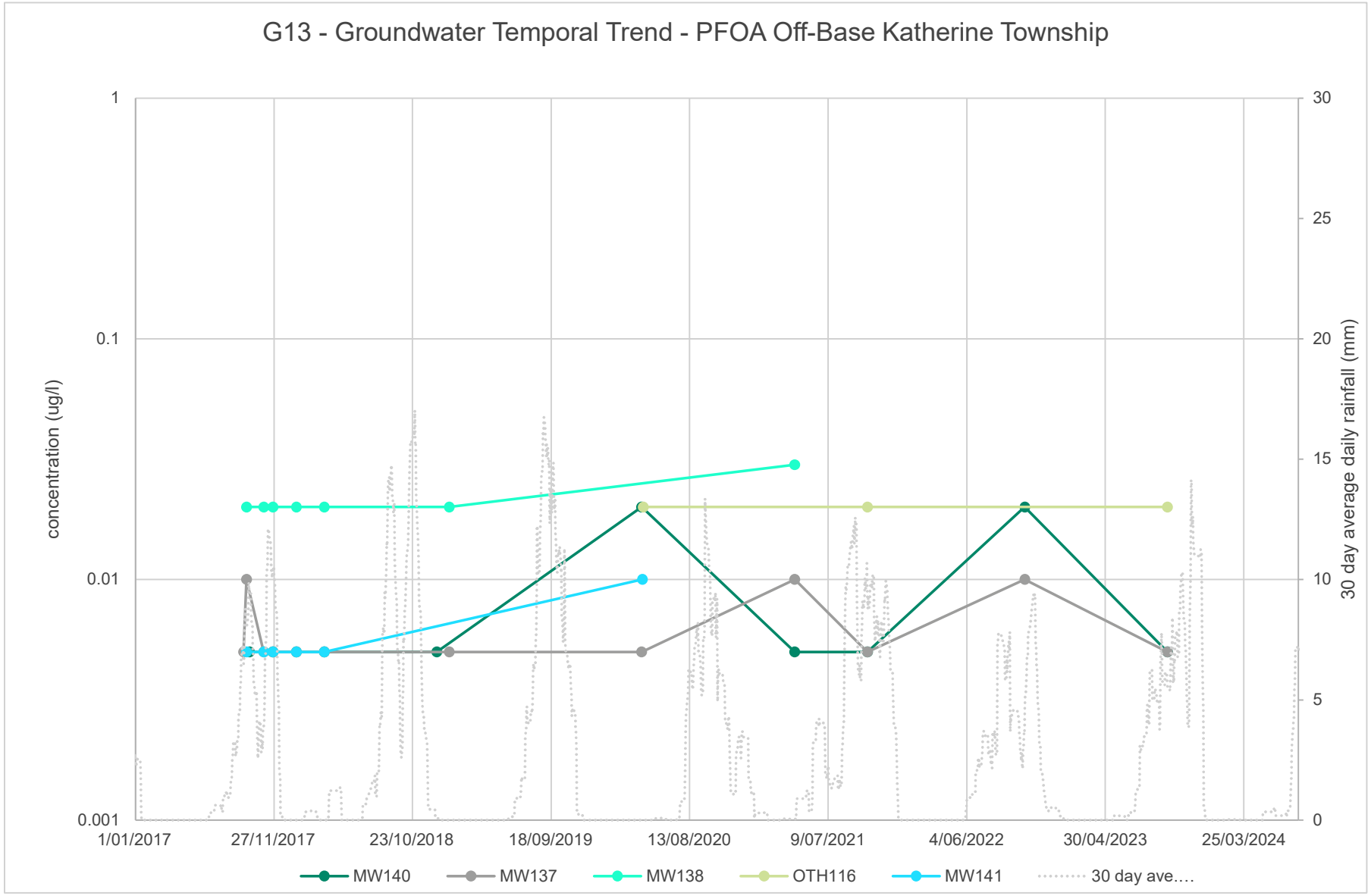

G8 - Groundwater Temporal Trend - PFOS+PFHxS - On-Base FSA
concentration (ug/l)
10000
1000
100
10
1
0.1
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
1/01/2017
27/11/2017
23/10/2018
18/09/2019
13/08/2020
9/07/2021
4/06/2022
30/04/2023
25/03/2024
MW127
MW129
MW406
MW149
30 day ave. daily rainfall

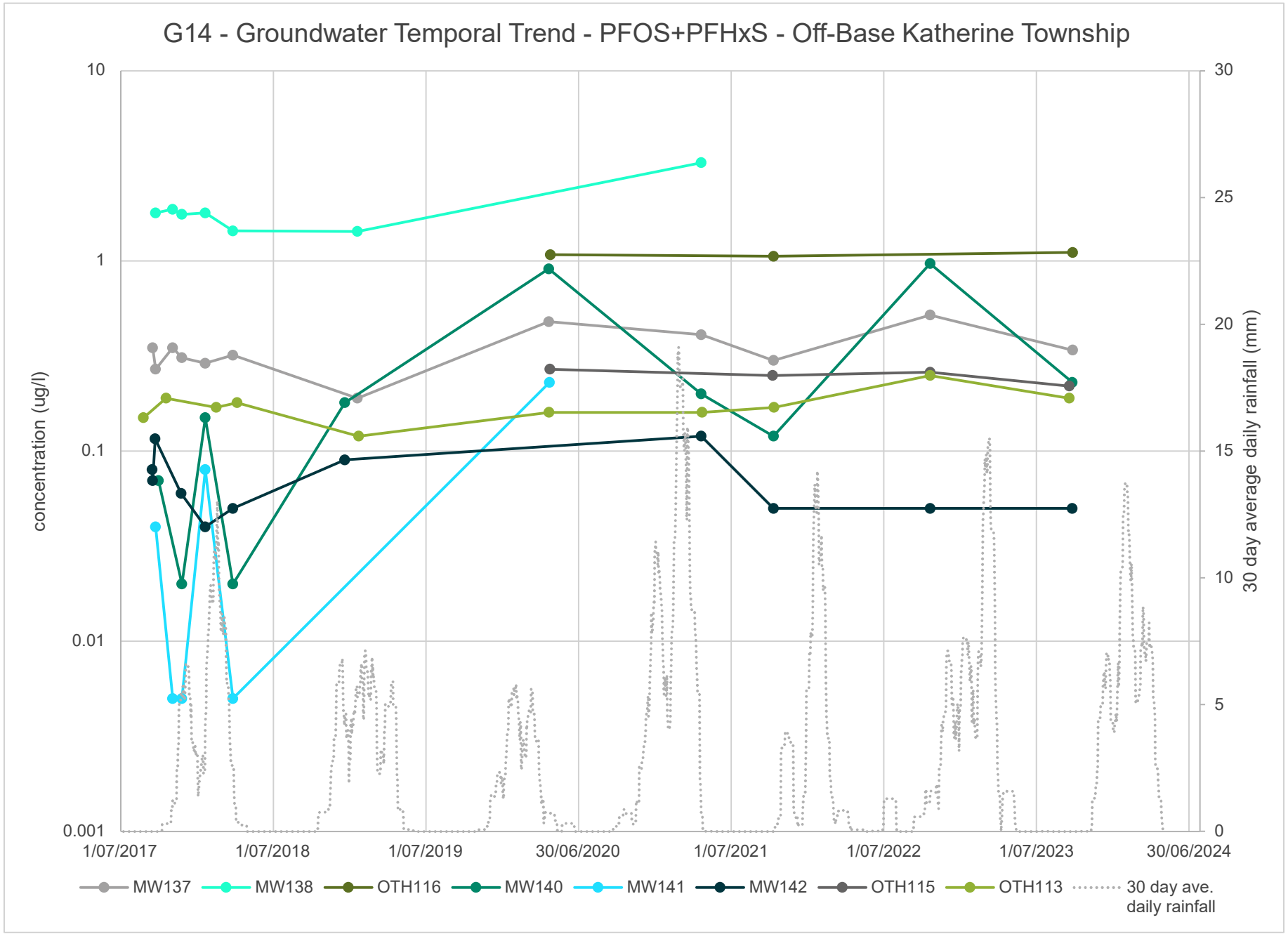

G9 - Groundwater Temporal Trend - PFOA - On-Base Boundary and Central Plume
concentration (ug/l)
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
14/06/2017
14/06/2018
14/06/2019
13/06/2020
14/06/2021
14/06/2022
14/06/2023
13/06/2024
MW107
MW110
MW117
MW118
30 day ave. daily rainfall

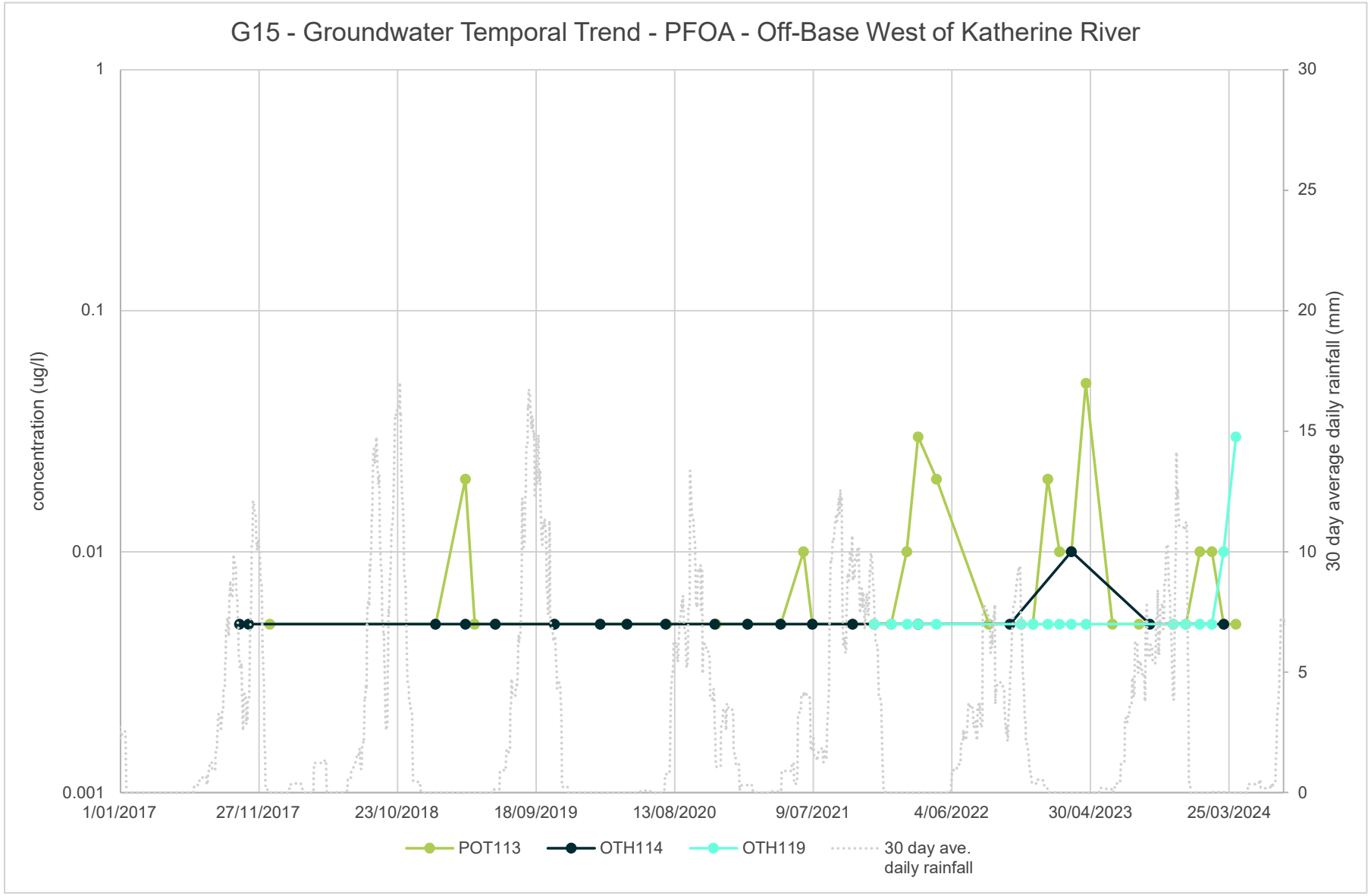

G10 - Groundwater Temporal Trend - PFOS+PFHxS - On-Base Boundary and Central Plume
concentration (ug/l)
10
1
0.1
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
1/07/2017
1/07/2018
1/07/2019
30/06/2020
1/07/2021
1/07/2022
1/07/2023
30/06/2024
MW107
MW110
MW117
MW118
30 day ave. daily rainfall

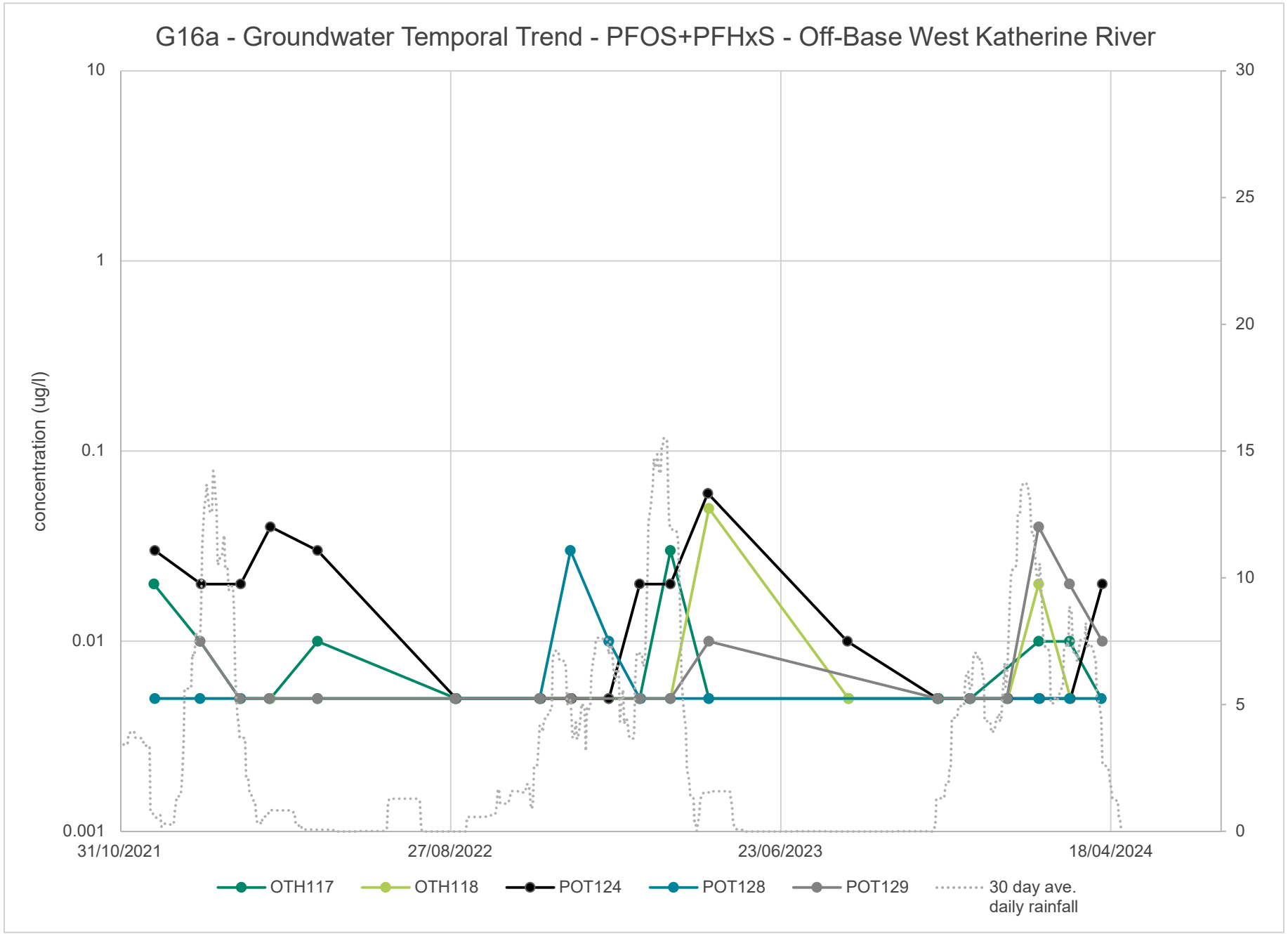

G11 - Groundwater Temporal Trend - PFOA - Off-Base Boundary and Central Plume
concentration (ug/l)
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
1/01/2017
27/11/2017
23/10/2018
18/09/2019
13/08/2020
9/07/2021
4/06/2022
30/04/2023
25/03/2024
MW134
MW732
MW135
MW400
30 day ave. daily rainfall

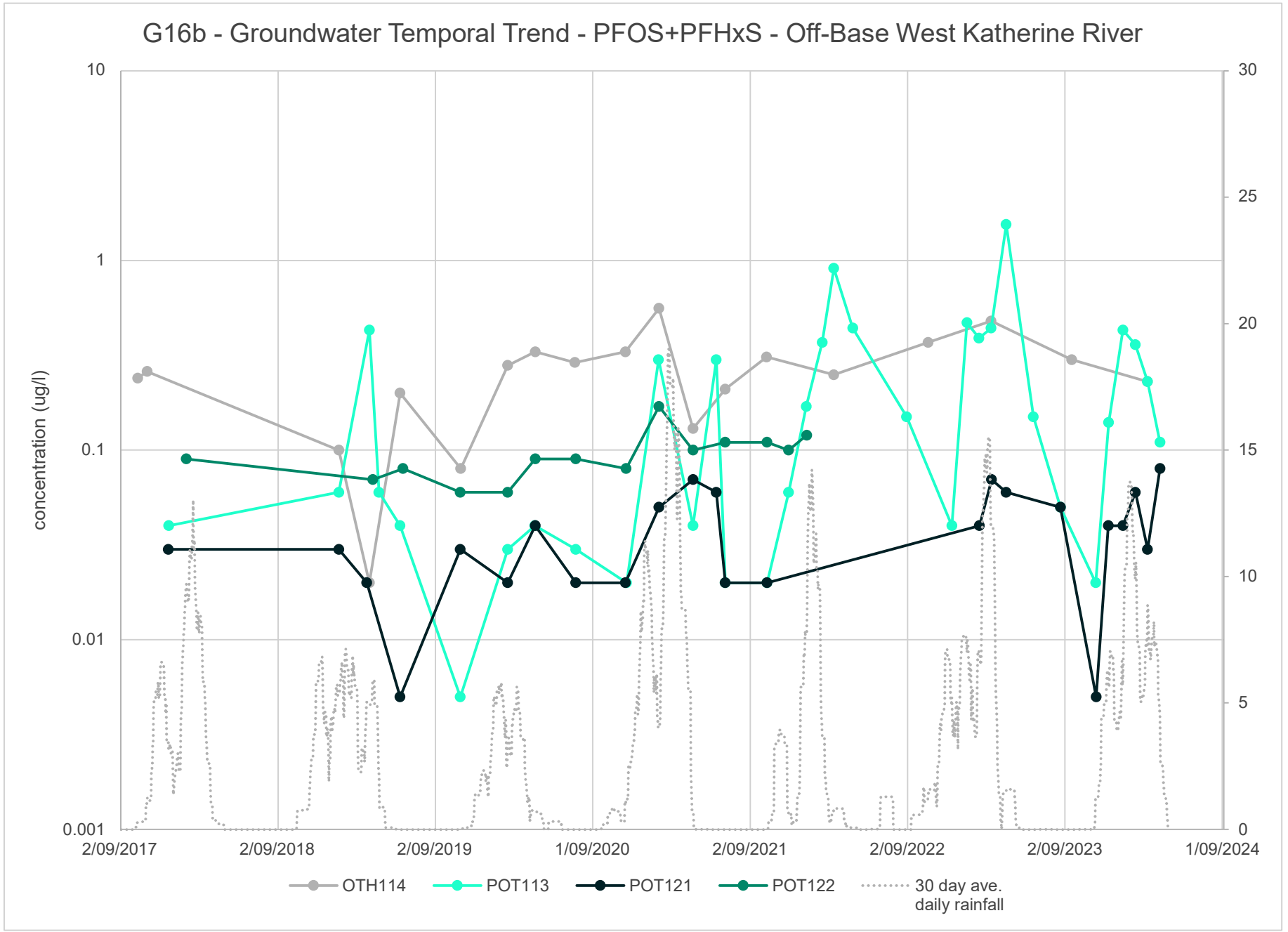

G12 - Groundwater Temporal Trend - PFOS+PFHxS - Off-Base Boundary and Central Plume
concentration (ug/l)
10
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
1/01/2017
27/11/2017
23/10/2018
18/09/2019
13/08/2020
9/07/2021
4/06/2022
30/04/2023
25/03/2024
MW134
MW732
MW135
MW400
30 day ave. daily rainfall

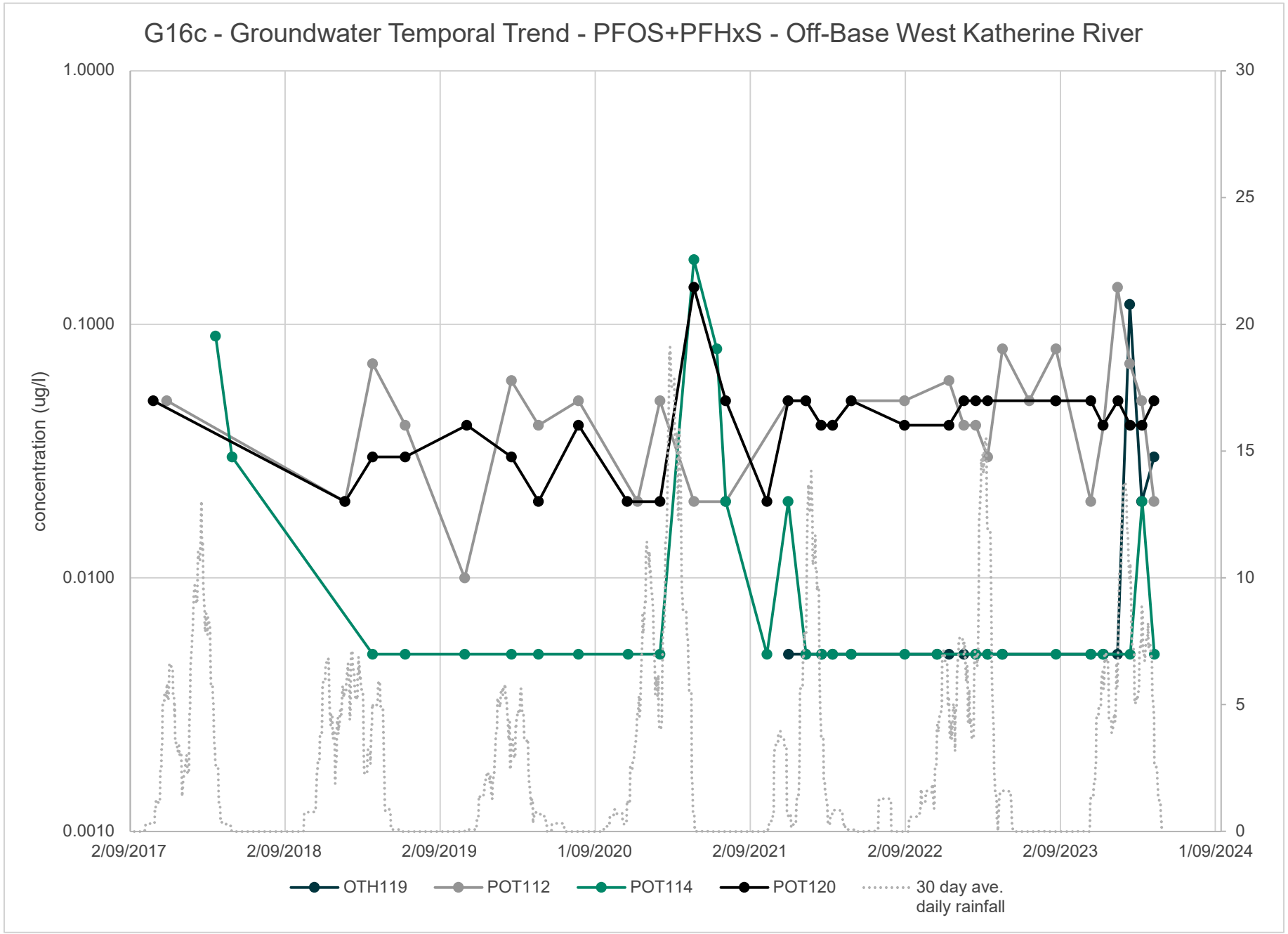

G13 - Groundwater Temporal Trend - PFOA Off-Base Katherine Township
concentration (ug/l)
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
1/01/2017
27/11/2017
23/10/2018
18/09/2019
13/08/2020
9/07/2021
4/06/2022
30/04/2023
25/03/2024
MW140
MW137
MW138
OTH116
MW141
30 day ave....

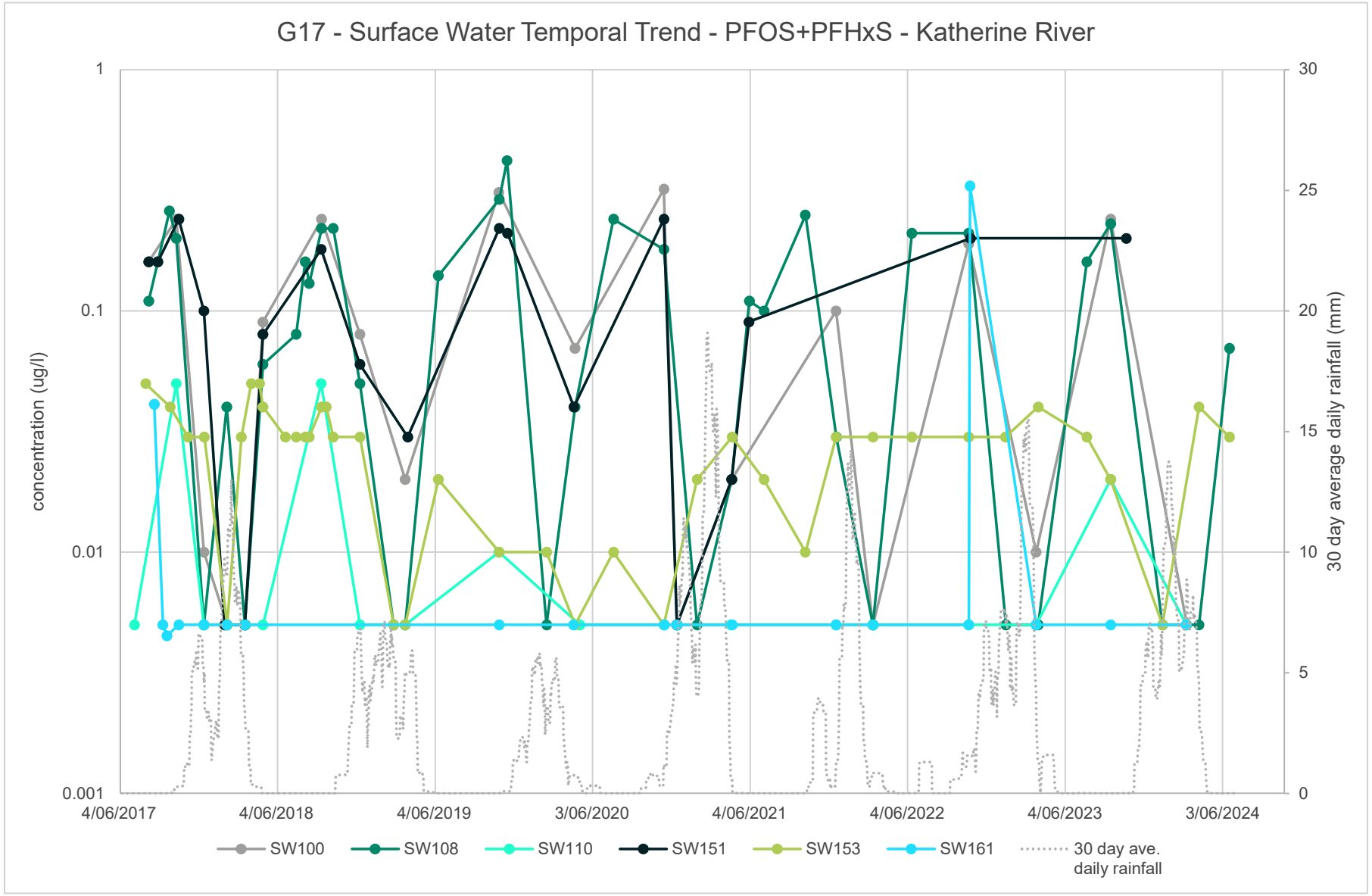

G14 - Groundwater Temporal Trend - PFOS+PFHxS - Off-Base Katherine Township
concentration (ug/l)
10
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
1/07/2017
1/07/2018
1/07/2019
30/06/2020
1/07/2021
1/07/2022
1/07/2023
30/06/2024
MW137
MW138
OTH116
MW140
MW141
MW142
OTH115
OTH113
30 day ave. daily rainfall

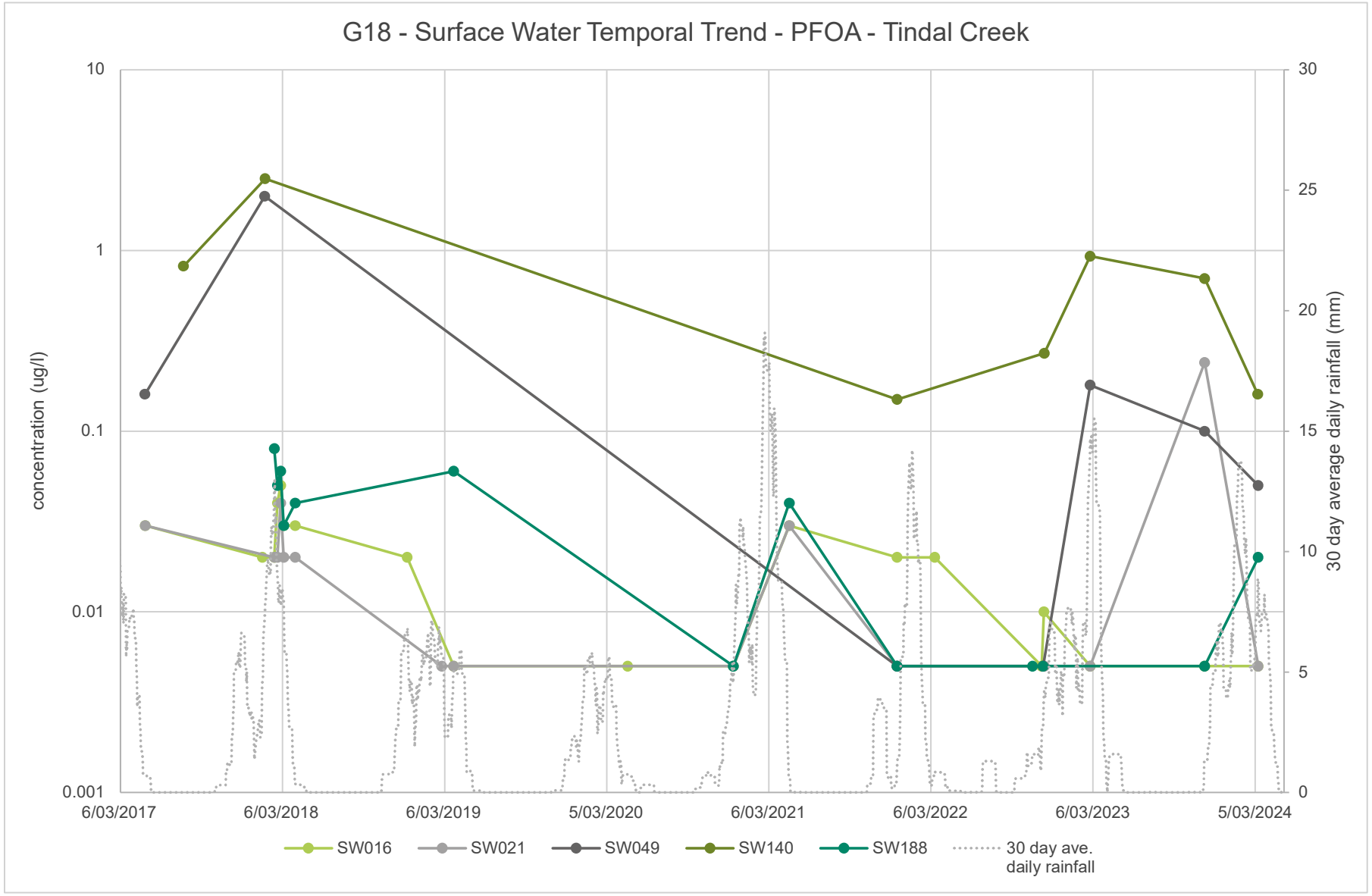

G15 - Groundwater Temporal Trend - PFOA - Off-Base West of Katherine River
concentration (ug/l)
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
1/01/2017
27/11/2017
23/10/2018
18/09/2019
13/08/2020
9/07/2021
4/06/2022
30/04/2023
25/03/2024
POT113
OTH114
OTH119
30 day ave. daily rainfall

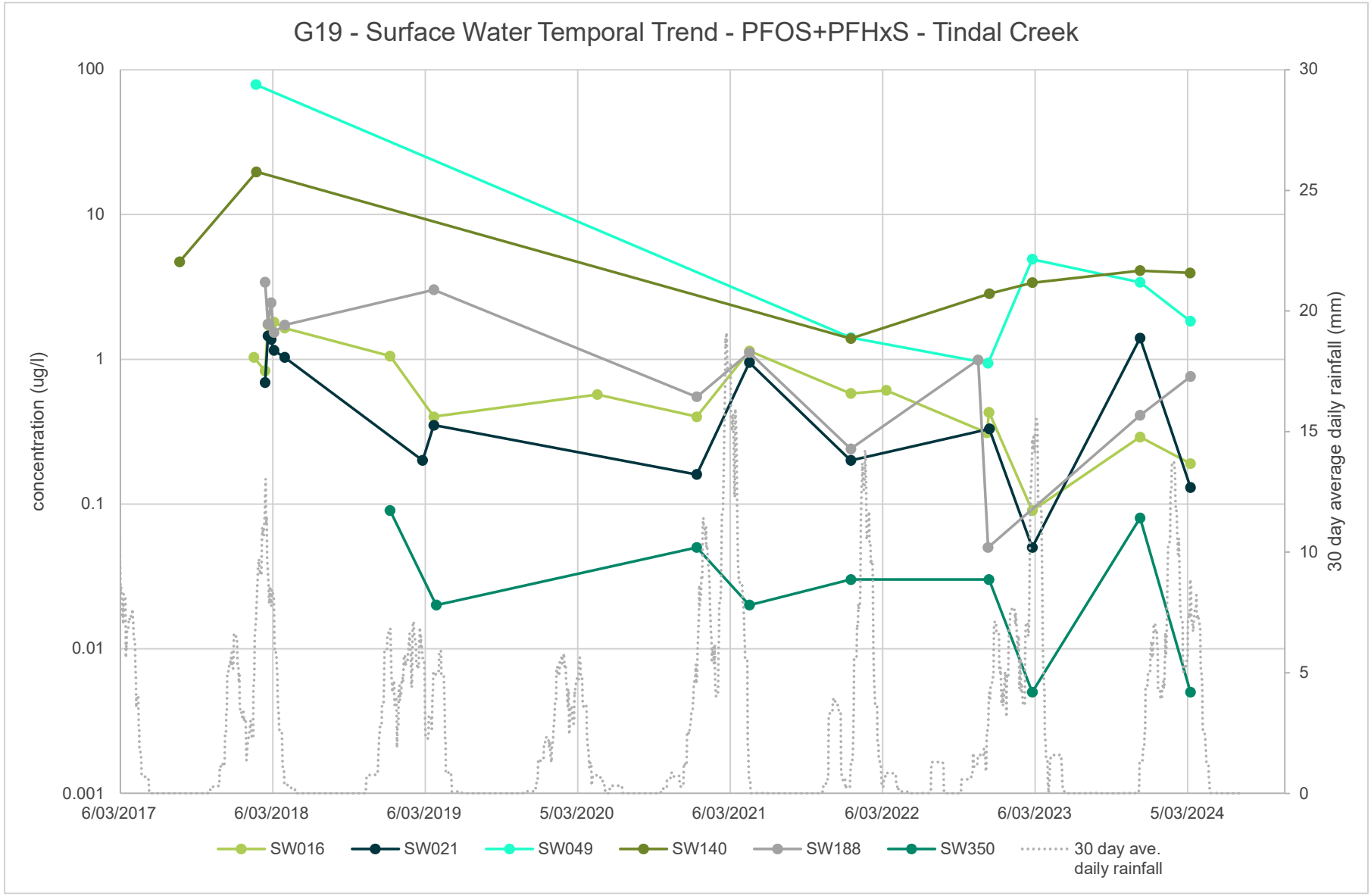

G16a - Groundwater Temporal Trend - PFOS+PFHxS - Off-Base West Katherine River
concentration (ug/l)
10
1
0.1
0.01
0.001
30
25
20
15
10
5
0
31/10/2021
27/08/2022
23/06/2023
18/04/2024
OTH117
OTH118
POT124
POT128
POT129
30 day ave. daily rainfall


G16b - Groundwater Temporal Trend - PFOS+PFHxS - Off-Base West Katherine River
concentration (ug/l)
10
1
0.1
0.01
0.001
30
25
20
15
10
5
0
2/09/2017
2/09/2018
2/09/2019
1/09/2020
2/09/2021
2/09/2022
2/09/2023
1/09/2024
OTH114
POT113
POT121
POT122
30 day ave. daily rainfall


G16c - Groundwater Temporal Trend - PFOS+PFHxS - Off-Base West Katherine River
concentration (ug/l)
1.0000
0.1000
0.0100
0.0010
30
25
20
15
10
5
0
2/09/2017
2/09/2018
2/09/2019
1/09/2020
2/09/2021
2/09/2022
2/09/2023
1/09/2024
OTH119
POT112
POT114
POT120
30 day ave. daily rainfall


G17 - Surface Water Temporal Trend - PFOS+PFHxS - Katherine River
concentration (ug/l)
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
4/06/2017
4/06/2018
4/06/2019
3/06/2020
4/06/2021
4/06/2022
4/06/2023
3/06/2024
SW100
SW108
SW110
SW151
SW153
SW161
30 day ave. daily rainfall


G18 - Surface Water Temporal Trend - PFOA - Tindal Creek
concentration (ug/l)
10
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
6/03/2017
6/03/2018
6/03/2019
5/03/2020
6/03/2021
6/03/2022
6/03/2023
5/03/2024
SW016
SW021
SW049
SW140
SW188
30 day ave. daily rainfall


G19 - Surface Water Temporal Trend - PFOS+PFHxS - Tindal Creek
concentration (ug/l)
100
10
1
0.1
0.01
0.001
30 day average daily rainfall (mm)
30
25
20
15
10
5
0
6/03/2017
6/03/2018
6/03/2019
5/03/2020
6/03/2021
6/03/2022
6/03/2023
5/03/2024
SW016
SW021
SW049
SW140
SW188
SW350
30 day ave. daily rainfall

Appendix E

Statistical Analysis

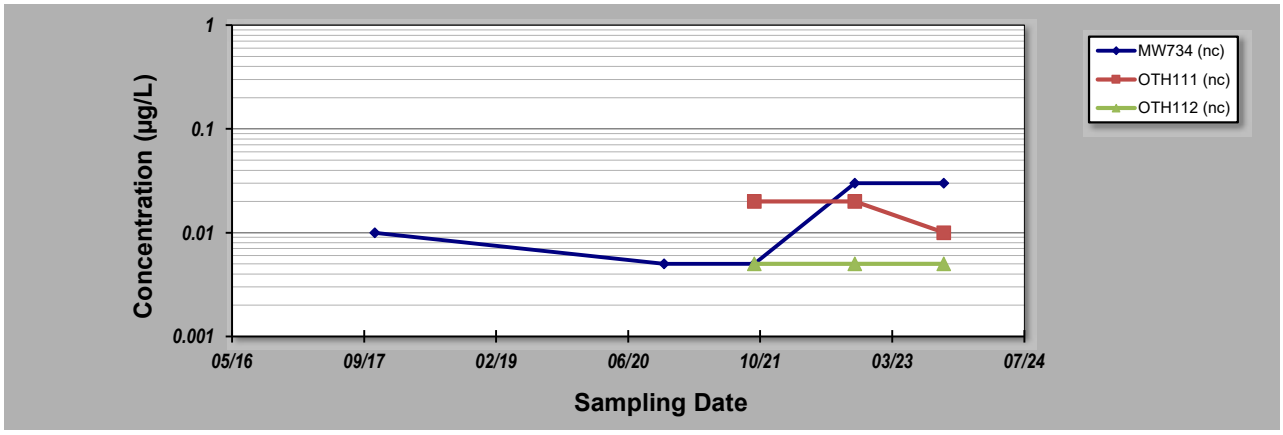
Appendix E Statistical Analysis

Management Area	Region of interest	Seasonal Period	Groundwater Locations
On-base	FTA	End of Dry Season	MW104, MW231 and MW230
	FSA	End of Dry Season	MW127, MW126 and MW406 (including original location MW405 for December 2018)
Minor source areas	Fuel Farm1, Fuel Farm 2, and MEOMS	End of Dry Season	MW244, MW278 and MW285
Base Boundary and Central Plume	On-base cross and upgradient	End of Dry Season	MW734 (including contingency well MW132 data), MW133 (which was replaced by MW734 in 2021), OTH111 and OTH112.
	On-base boundary and central transects	End of Dry Season	MW107, MW110, MW117 (including contingency well MW118 data) and MW403 (including contingency well MW735 data)
	Off-base central plume and Uralla	End of Dry Season	MW134 (including contingency well MW732 data), MW135 (including contingency well OTH123 data), MW400 and POT111
Off-base Katherine Township	Katherine Township and East Katherine	End of Dry Season	MW137, MW138 (including contingency well OTH116 data), MW140, MW142, OTH115, OTH113 and POT119
Off-base West Katherine River	Emungalan and Cossack	End of Dry Season, End of Wet Season	MW528, OTH120, OTH114, POT112, POT113, POT114, POT120, POT121 and POT122, POT124, POT125, POT126, POT127, POT128, POT129, POT130, OTH117 and OTH118

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Up/Cross Gradient	Constituent:	PFOS + PFHxS (end of dry season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW734 (nc)	OTH111 (nc)	OTH112 (nc)				
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Nov-17	0.01						
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18							
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20	0.005						
12	Jan-20							
13	Apr-21							
14	Oct-21	0.005	0.02	0.005				
15	Oct-22	0.03	0.02	0.005				
16	Sep-23	0.03	0.01	0.005				
17								
18								
19								
20								
Coefficient of Variation:		0.88	0.35	0.00	0.00	0.00	0.00	0.00
Mann-Kendall Statistic (S):		1	-2	0	0	0	0	0
Confidence Factor:		50.0%		37.5%				
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.
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.

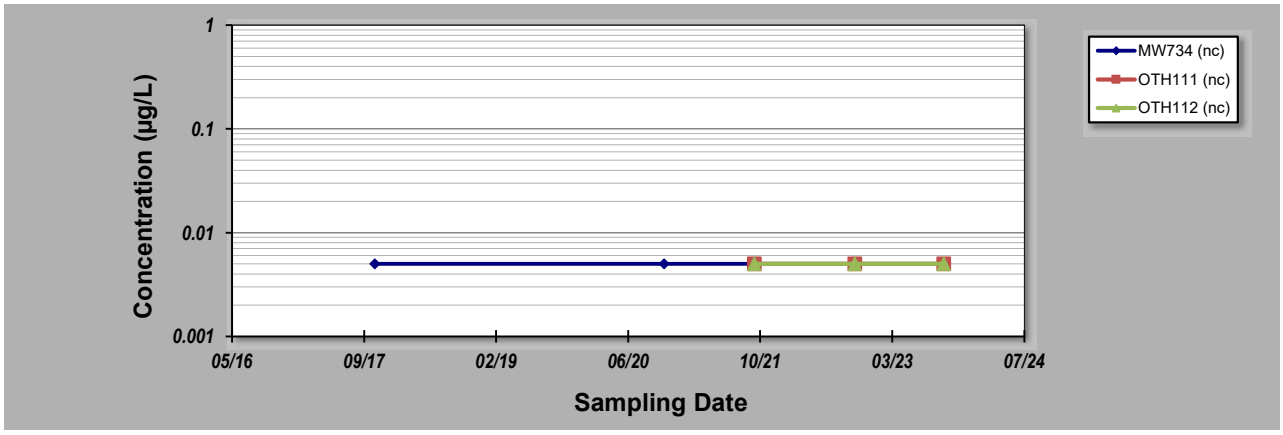
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Up/Cross Gradient	Constituent:	PFOA (end of dry season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW734 (nc)	OTH111 (nc)	OTH112 (nc)				
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Nov-17	0.005						
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18							
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20	0.005						
12	Jan-20							
13	Apr-21							
14	Oct-21	0.005	0.005	0.005				
15	Oct-22	0.005	0.005	0.005				
16	Sep-23	0.005	0.005	0.005				
17								
18								
19								
20								
Coefficient of Variation:		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mann-Kendall Statistic (S):		0	0	0	0	0	0	0
Confidence Factor:		39.3%		37.5%				
Concentration Trend:		Stable		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.

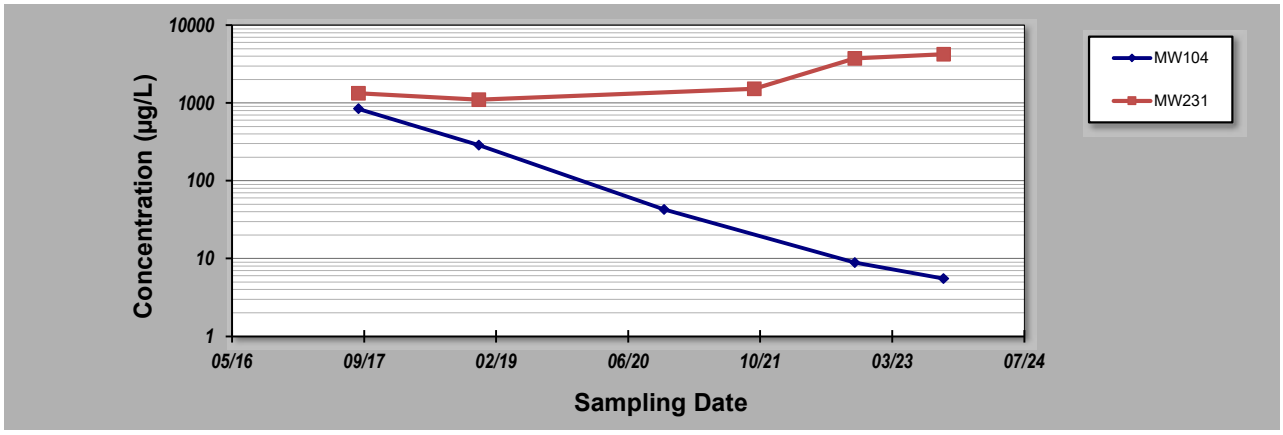
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - FTA	Constituent:	PFOS + PFHxS (end of dry season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW104	MW231					
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17	840	1330					
2	Nov-17							
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18	286	1100					
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20	42.7						
12	Jan-20							
13	Apr-21							
14	Oct-21		1520.00					
15	Oct-22	8.84	3740.00					
16	Sep-23	5.52	4230.00					
17								
18								
19								
20								
Coefficient of Variation:		1.51	0.62					
Mann-Kendall Statistic (S):		-10	8					
Confidence Factor:		99.2%	95.8%					
Concentration Trend:		Decreasing	Increasing					



Notes:

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

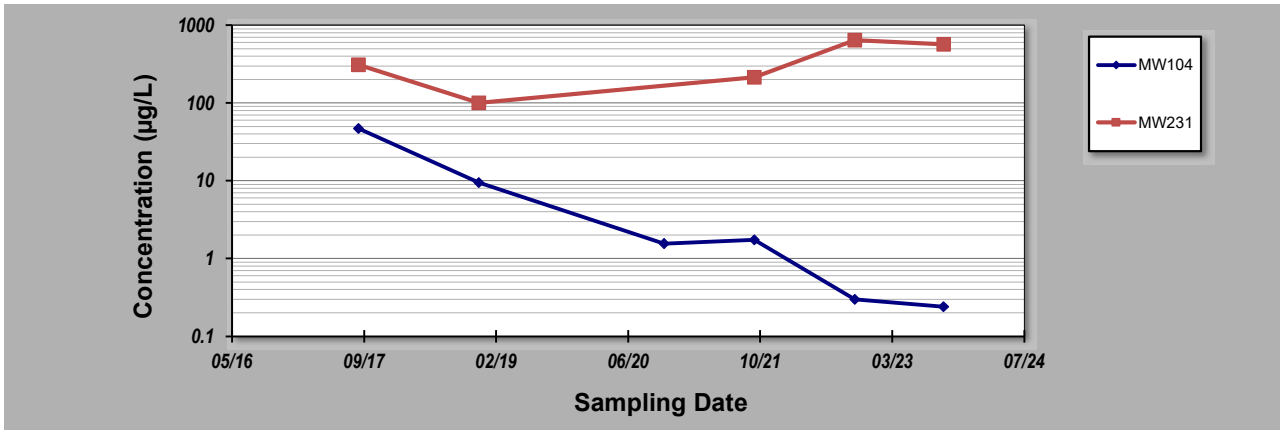
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - FTA	Constituent:	PFOA (end of dry season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW104	MW231					
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17	47	310					
2	Nov-17							
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18	9.5	100					
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20	1.56						
12	Jan-20							
13	Apr-21							
14	Oct-21	1.74	215.00					
15	Oct-22	0.3	642.00					
16	Sep-23	0.24	568.00					
17								
18								
19								
20								
Coefficient of Variation:		1.83	0.63					
Mann-Kendall Statistic (S):		-13	4					
Confidence Factor:		99.2%	75.8%					
Concentration Trend:		Decreasing	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.

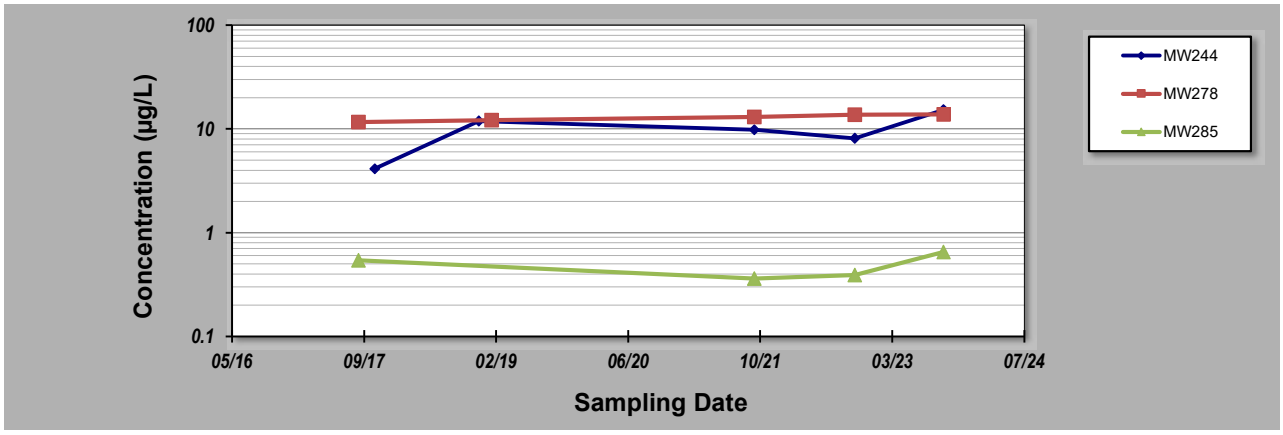
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Minor Source Areas	Constituent:	PFOS + PFHxS (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW244	MW278	MW285				
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17		11.6	0.54				
2	Nov-17	4.12						
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18	11.9						
7	Jan-19		12.2					
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Oct-21	9.82	13	0.36				
15	Oct-22	8.13	13.7	0.39				
16	Sep-23	15.300	13.800	0.650				
17								
18								
19								
20								
Coefficient of Variation:		0.42	0.07	0.28				
Mann-Kendall Statistic (S):		4	10	2				
Confidence Factor:		75.8%	99.2%	62.5%				
Concentration Trend:		No Trend	Increasing	No Trend				



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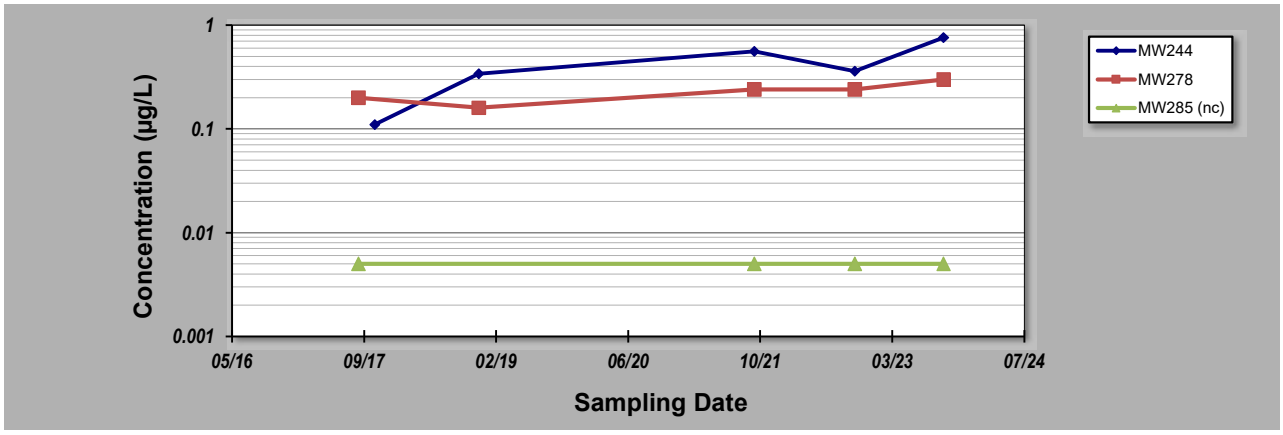
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Minor Source Areas	Constituent:	PFOA (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW244	MW278	MW285 (nc)				
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17		0.2	0.005				
2	Nov-17	0.11						
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18	0.34	0.16					
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Oct-21	0.56	0.24	0.005				
15	Oct-22	0.36	0.24	0.005				
16	Sep-23	0.760	0.300	0.005				
17								
18								
19								
20								
Coefficient of Variation:		0.58	0.23	0.00				
Mann-Kendall Statistic (S):		8	7	0				
Confidence Factor:		95.8%	92.1%	37.5%				
Concentration Trend:		Increasing	Prob. Increasing	Stable				



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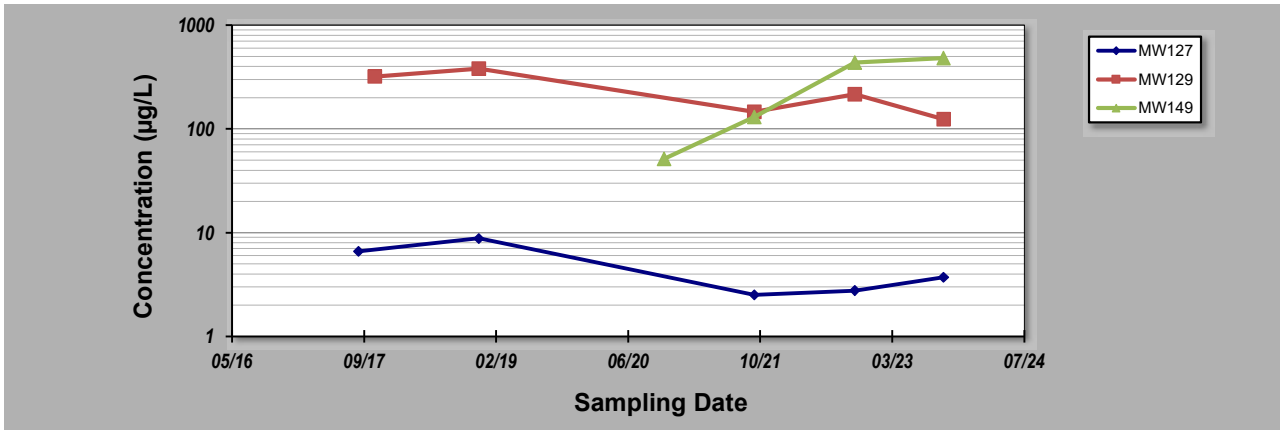
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base FSA	Constituent:	PFOS + PFHxS (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW127	MW129	MW149				
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17	6.6						
2	Nov-17		320					
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18	8.8	380					
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20			51.4				
12	Jan-20							
13	Apr-21							
14	Oct-21	2.51	146	130				
15	Oct-22	2.77	216	437				
16	Sep-23	3.71	124	482				
17								
18								
19								
20								
Coefficient of Variation:		0.56	0.47	0.79				
Mann-Kendall Statistic (S):		-2	-6	6				
Confidence Factor:		59.2%	88.3%	95.8%				
Concentration Trend:		Stable	Stable	Increasing				



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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.

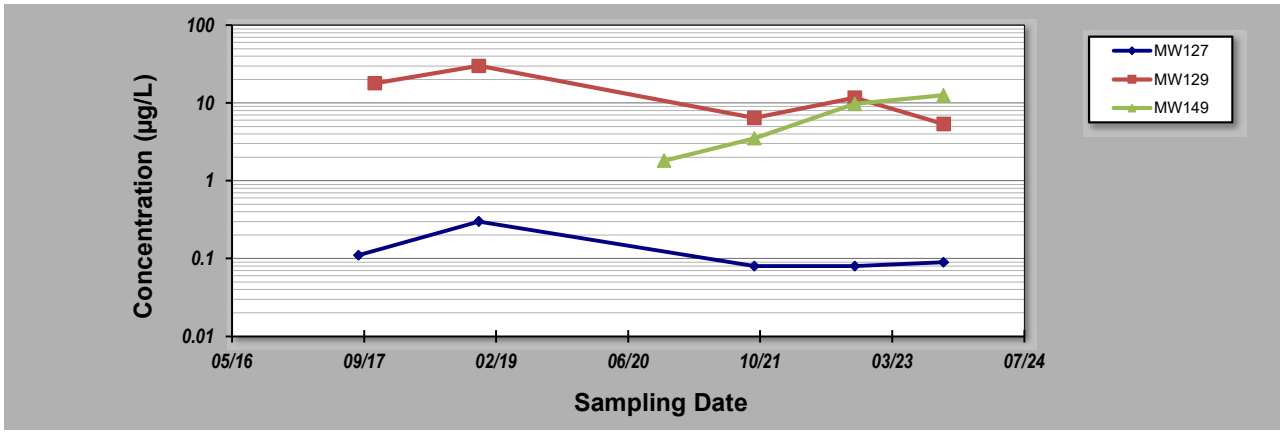
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - FSA	Constituent:	PFOA (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW127	MW129	MW149				
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17	0.11						
2	Nov-17		18					
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18	0.3	30					
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20			1.81				
12	Jan-20							
13	Apr-21							
14	Oct-21	0.08	6.41	3.52				
15	Oct-22	0.08	11.7	9.7				
16	Sep-23	0.09	5.37	12.6				
17								
18								
19								
20								
Coefficient of Variation:		0.72	0.71	0.74				
Mann-Kendall Statistic (S):		-3	-6	6				
Confidence Factor:		67.5%	88.3%	95.8%				
Concentration Trend:		Stable	Stable	Increasing				



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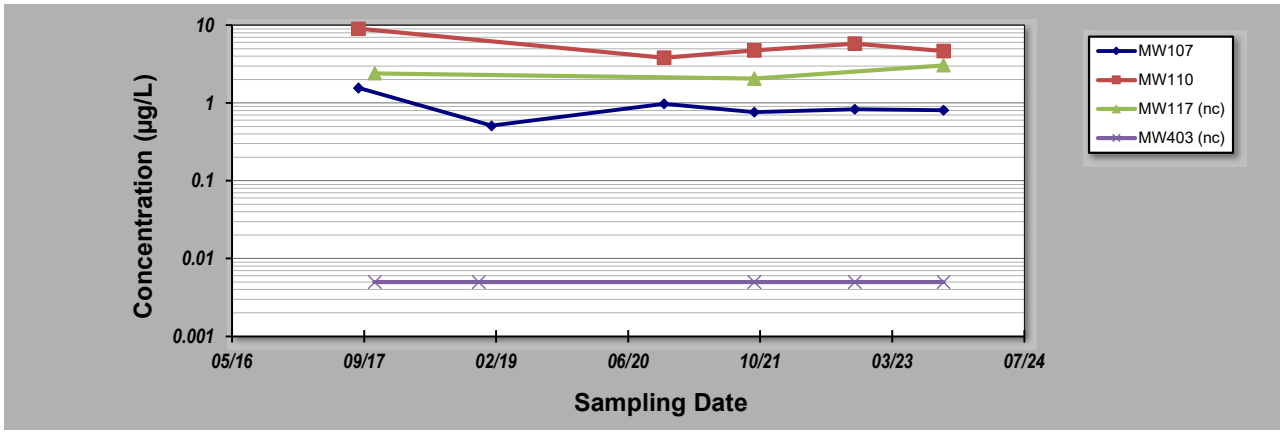
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - On-Base Boundary/Central	Constituent:	PFOS + PFHxS (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW107	MW110	MW117 (nc)	MW403 (nc)			
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17	1.56	9					
2	Nov-17			2.41	0.005			
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18				0.005			
7	Jan-19	0.51						
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20	0.97	3.8					
12	Jan-20							
13	Apr-21							
14	Oct-21	0.76	4.74	2.06	0.005			
15	Oct-22	0.83	5.79		0.005			
16	Sep-23	0.81	4.66	3.05	0.005			
17								
18								
19								
20								
Coefficient of Variation:		0.39	0.36	0.20	0.00			
Mann-Kendall Statistic (S):		-3	-2	1	0			
Confidence Factor:		64.0%	59.2%		40.8%			
Concentration Trend:		Stable	Stable		Stable			



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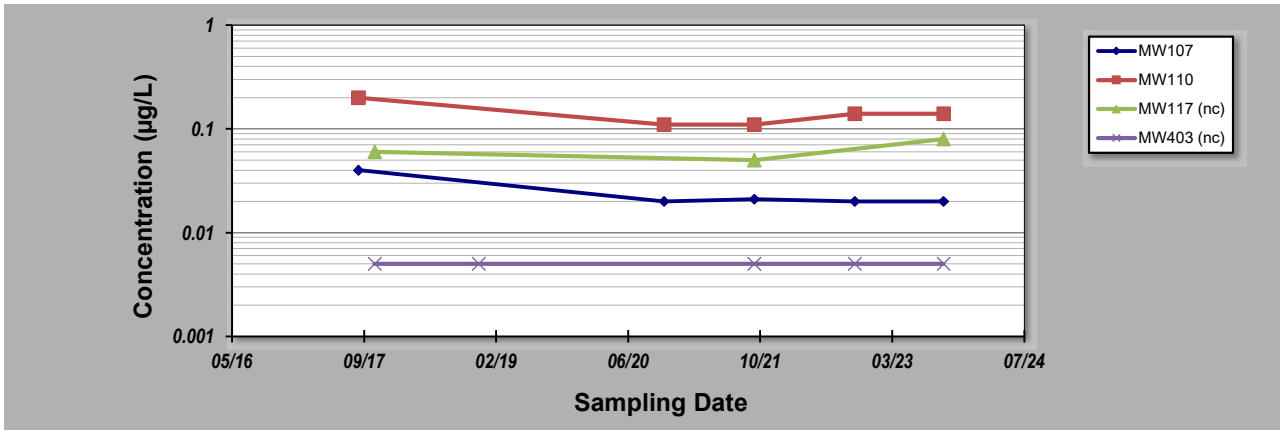
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - On-Base Boundary/Central	Constituent:	PFOA (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW107	MW110	MW117 (nc)	MW403 (nc)			
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17	0.04	0.2					
2	Nov-17			0.06	0.005			
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18				0.005			
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20	0.02	0.11					
12	Jan-20							
13	Apr-21							
14	Oct-21	0.021	0.11	0.05	0.005			
15	Oct-22	0.02	0.14		0.005			
16	Sep-23	0.02	0.14	0.08	0.005			
17								
18								
19								
20								
Coefficient of Variation:		0.37	0.14	0.24	0.00			
Mann-Kendall Statistic (S):		-5	4	1	0			
Confidence Factor:		82.1%	83.3%		40.8%			
Concentration Trend:		Stable	No Trend		Stable			



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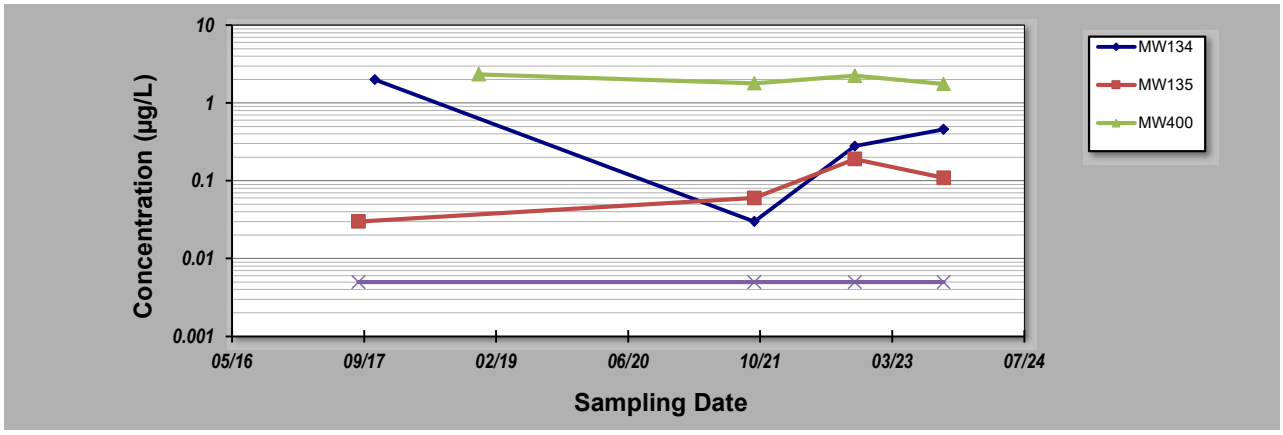
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base Central	Constituent:	PFOS + PFHxS (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW134	MW135	MW400	POT111 (nc)			
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17		0.03		0.005			
2	Nov-17	2						
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18			2.34				
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Oct-21	0.03	0.06	1.80	0.005			
15	Oct-22	0.28	0.19	2.25	0.005			
16	Sep-23	0.46	0.11	1.76	0.005			
17								
18								
19								
20								
Coefficient of Variation:		1.28	0.72	0.15	0.00			
Mann-Kendall Statistic (S):		0	4	-4	0			
Confidence Factor:		37.5%	83.3%	83.3%	37.5%			
Concentration Trend:		No Trend	No Trend	Stable	Stable			



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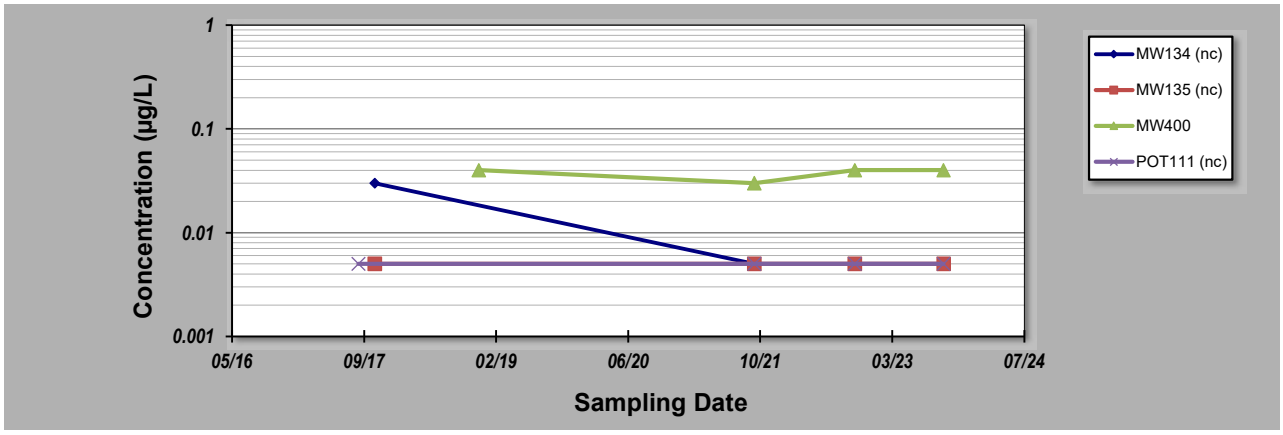
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base Central	Constituent:	PFOA (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW134 (nc)	MW135 (nc)	MW400	POT111 (nc)			
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17				0.005			
2	Nov-17	0.03	0.005					
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18			0.04				
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Oct-21	0.005	0.005	0.03	0.005			
15	Oct-22	0.005	0.005	0.04	0.005			
16	Sep-23	0.005	0.005	0.04	0.005			
17								
18								
19								
20								
Coefficient of Variation:		1.11	0.00	0.13	0.00			
Mann-Kendall Statistic (S):		-3	0	1	0			
Confidence Factor:		72.9%	37.5%	50.0%	37.5%			
Concentration Trend:		No Trend	Stable	No Trend	Stable			



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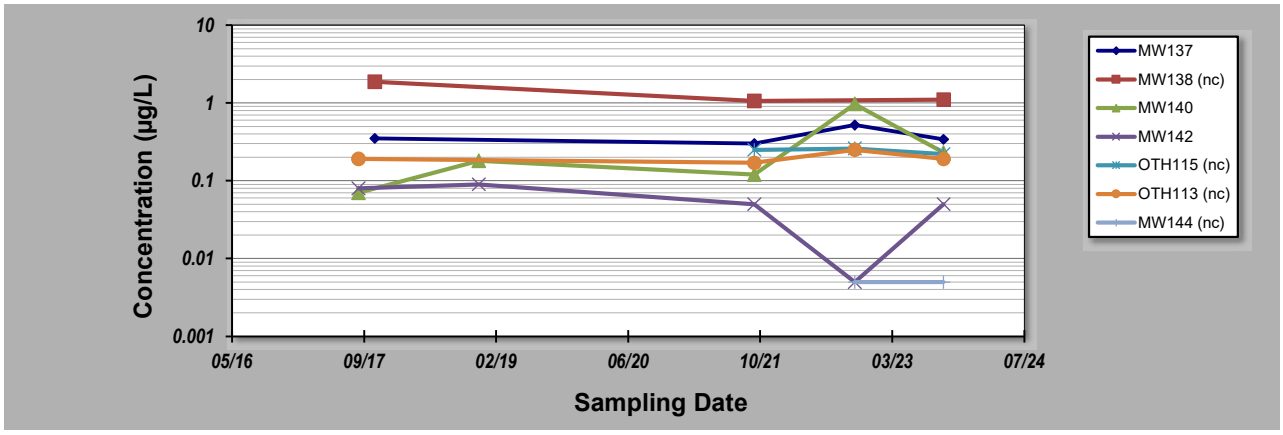
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base Katherine Townsh	Constituent:	PFOS + PFHxS (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW137	MW138 (nc)	MW140	MW142	OTH115 (nc)	OTH113 (nc)	MW144 (nc)
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17			0.07	0.08		0.19	
2	Nov-17	0.35	1.87					
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18			0.18	0.09			
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Oct-21	0.3	1.06	0.12	0.05	0.25	0.17	
15	Oct-22	0.52		0.97	0.005	0.26	0.25	0.005
16	Sep-23	0.34	1.11	0.23	0.05	0.22	0.19	0.005
17								
18								
19								
20								
Coefficient of Variation:		0.26	0.34	1.18	0.60	0.09	0.17	0.00
Mann-Kendall Statistic (S):		0	-1	6	-5	-1	1	0
Confidence Factor:		37.5%		88.3%	82.1%		50.0%	
Concentration Trend:		Stable		No Trend	Stable		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.

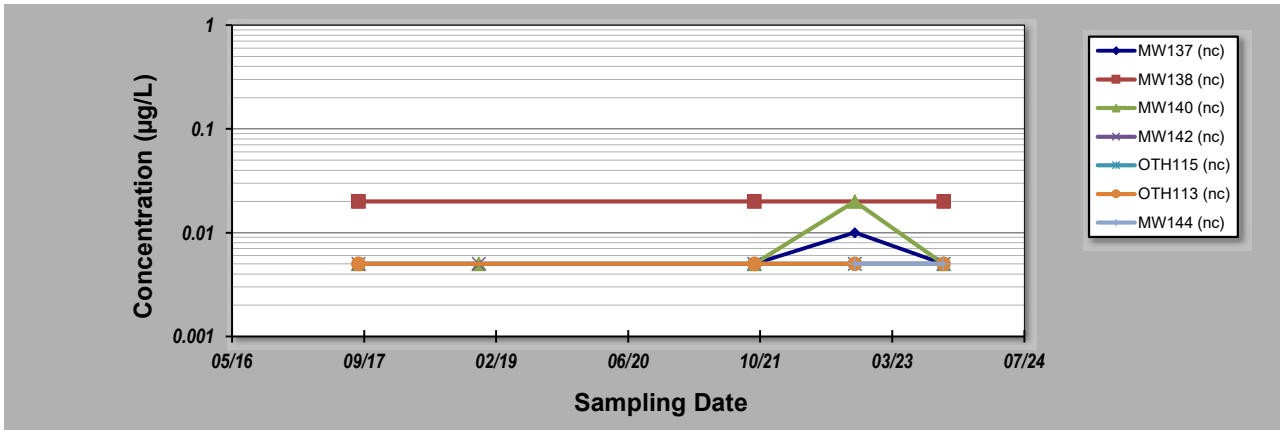
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base Katherine Townsh	Constituent:	PFOA (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	MW137 (nc)	MW138 (nc)	MW140 (nc)	MW142 (nc)	OTH115 (nc)	OTH113 (nc)	MW144 (nc)
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17	0.005	0.02	0.005	0.005		0.005	
2	Nov-17							
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18			0.005	0.005			
7	Jan-19							
8	Feb-19							
9	Mar-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Oct-21	0.005	0.02	0.005	0.005	0.005	0.005	
15	Oct-22	0.01		0.02	0.005	0.005	0.005	0.005
16	Sep-23	0.005	0.02	0.005	0.005	0.005	0.005	0.005
17								
18								
19								
20								
Coefficient of Variation:		0.40	0.00	0.84	0.00	0.00	0.00	0.00
Mann-Kendall Statistic (S):		1	0	2	0	0	0	0
Confidence Factor:		50.0%		59.2%	40.8%		37.5%	
Concentration Trend:		No Trend		No Trend	Stable		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.

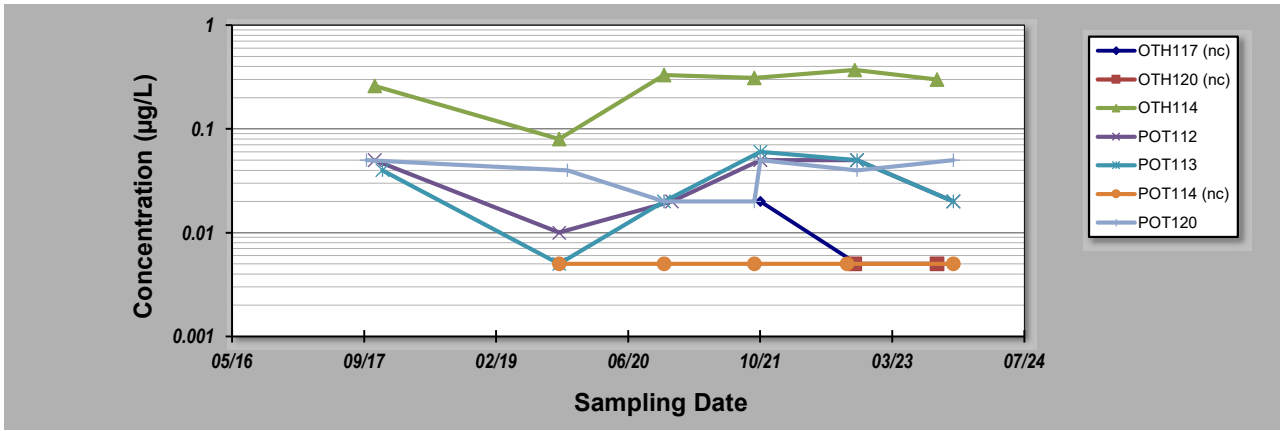
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOS + PFHxS (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	OTH117 (nc)	OTH120 (nc)	OTH114	POT112	POT113	POT114 (nc)	POT120
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Oct-17							0.05
2	Nov-17			0.26	0.05			
3	Dec-17					0.04		
4	Mar-18							
5	Apr-18							
6	Dec-18							
7	Jan-19							
8	Oct-19			0.08	0.01	0.005	0.005	
9	Nov-19							0.04
10	Nov-20			0.33		0.02	0.005	0.02
11	Dec-20				0.02			
12	Oct-21			0.31			0.005	0.02
13	Nov-21	0.02			0.05	0.06		0.05
14	Dec-21							
15	Sep-22						0.005	
16	Oct-22		0.005	0.37				
17	Nov-22	0.005			0.05	0.05		0.04
18	Nov-23	0.005			0.02	0.02	0.005	0.05
19	Sep-23		0.005	0.3				
20								
Coefficient of Variation:		0.87	0.00	0.37	0.56	0.64	0.00	0.35
Mann-Kendall Statistic (S):		-2	0	5	1	2	0	2
Confidence Factor:				76.5%	50.0%	57.0%	40.8%	55.7%
Concentration Trend:				No Trend	No Trend	No Trend	Stable	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.

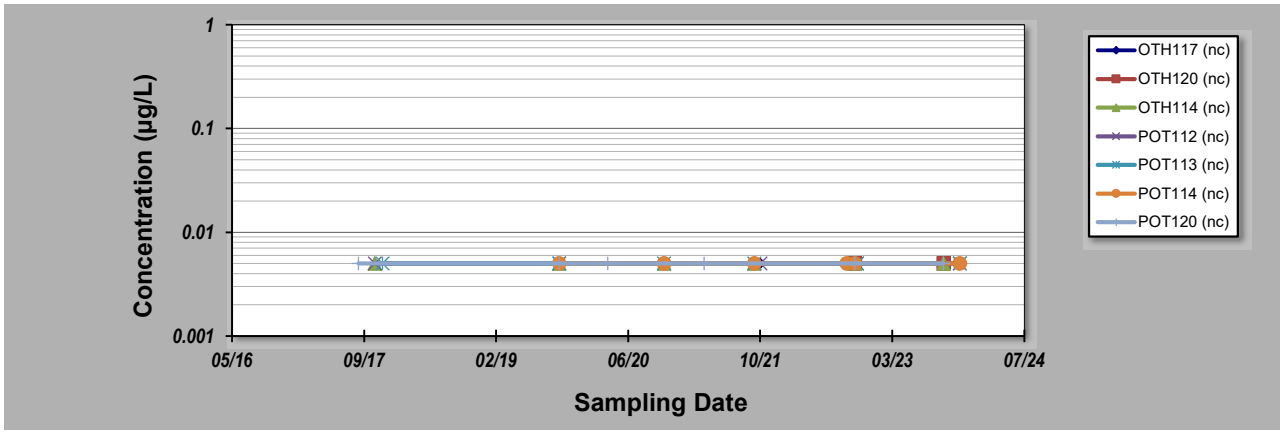
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOA (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	OTH117 (nc)	OTH120 (nc)	OTH114 (nc)	POT112 (nc)	POT113 (nc)	POT114 (nc)	POT120 (nc)
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Oct-17							0.005
3	Nov-17			0.005	0.005			
4	Dec-17					0.005		
5	Apr-18							
6	Dec-18							
7	Jan-19							
8	Oct-19			0.005	0.005	0.005	0.005	
9	Nov-19							0.005
10	Apr-20							
11	Nov-20			0.005		0.005	0.005	0.005
12	Jan-20							
13	Apr-21							
14	Oct-21			0.005		0.005	0.005	0.005
15	Nov-21	0.005			0.005			
16	Sep-22						0.005	
17	Oct-22		0.005	0.005			0.005	
18	Nov-22	0.005			0.005	0.005		0.005
19	Sep-23		0.005	0.005				
20	Nov-23	0.005			0.005	0.005	0.005	0.005
21								
22								
23								
24								
25								
Coefficient of Variation:		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mann-Kendall Statistic (S):		0	0	0	0	0	0	0
Confidence Factor:				39.3%	40.8%	39.3%	39.3%	39.3%
Concentration Trend:				Stable	Stable	Stable	Stable	Stable



Notes:

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

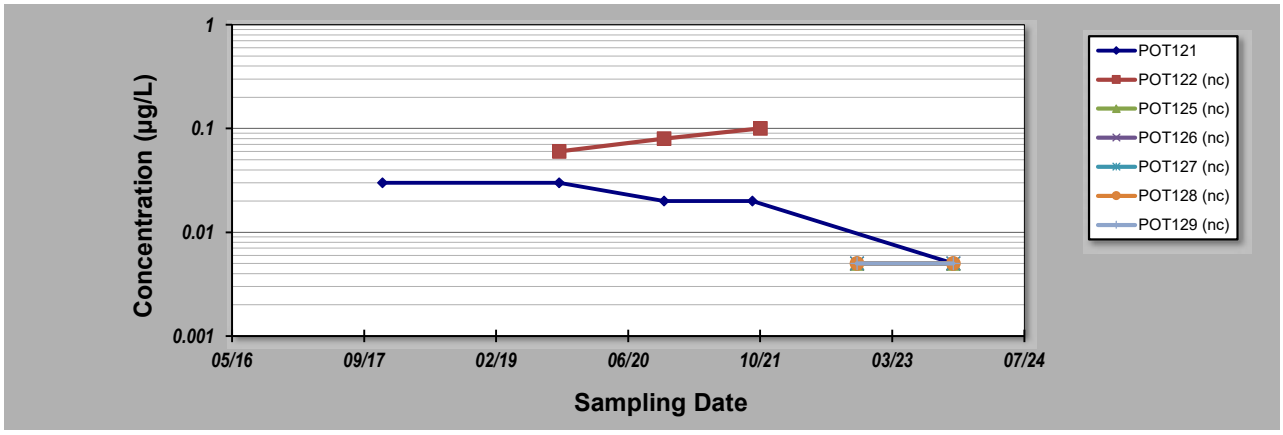
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOS + PFHxS (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	POT121	POT122 (nc)	POT125 (nc)	POT126 (nc)	POT127 (nc)	POT128 (nc)	POT129 (nc)
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Oct-17							
3	Nov-17							
4	Dec-17	0.03						
5	Sep-18							
6	Oct-18							
7	Nov-18							
8	Sep-19							
9	Oct-19	0.03	0.06					
10	Nov-19							
11	Sep-20							
12	Oct-20							
13	Nov-20	0.02	0.08					
14	Sep-21							
15	Oct-21	0.02						
16	Nov-21		0.1					
17	Sep-22							
18	Oct-22							
19	Nov-22			0.005	0.005	0.005	0.005	0.005
20	Sep-23							
21	Oct-23							
22	Nov-23	0.005		0.005	0.005	0.005	0.005	0.005
23								
24								
25								
Coefficient of Variation:		0.49	0.25	0.00	0.00	0.00	0.00	0.00
Mann-Kendall Statistic (S):		-8	3	0	0	0	0	0
Confidence Factor:		95.8%						
Concentration Trend:		Decreasing						



Notes:

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

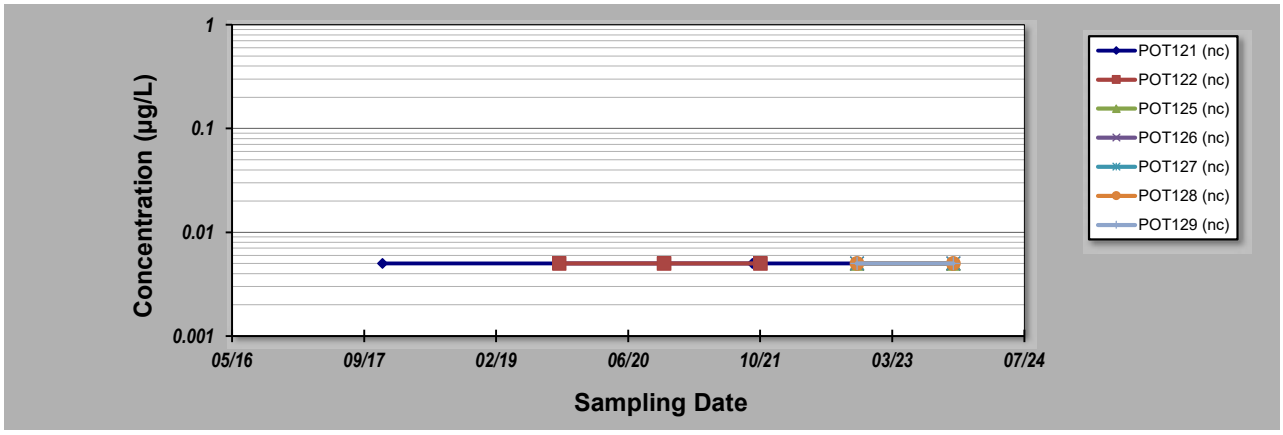
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOA (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	POT121 (nc)	POT122 (nc)	POT125 (nc)	POT126 (nc)	POT127 (nc)	POT128 (nc)	POT129 (nc)
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Oct-17							
3	Nov-17							
4	Dec-17	0.005						
5	Sep-18							
6	Oct-18							
7	Nov-18							
8	Sep-19							
9	Oct-19	0.005	0.005					
10	Nov-19							
11	Sep-20							
12	Oct-20							
13	Nov-20	0.005	0.005					
14	Sep-21							
15	Oct-21	0.005						
16	Nov-21		0.005					
17	Sep-22							
18	Oct-22							
19	Nov-22			0.005	0.005	0.005	0.005	0.005
20	Sep-23							
21	Oct-23							
22	Nov-23	0.005		0.005	0.005	0.005	0.005	0.005
23								
24								
25								
Coefficient of Variation:		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mann-Kendall Statistic (S):		0	0	0	0	0	0	0
Confidence Factor:		40.8%						
Concentration Trend:		Stable						



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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.

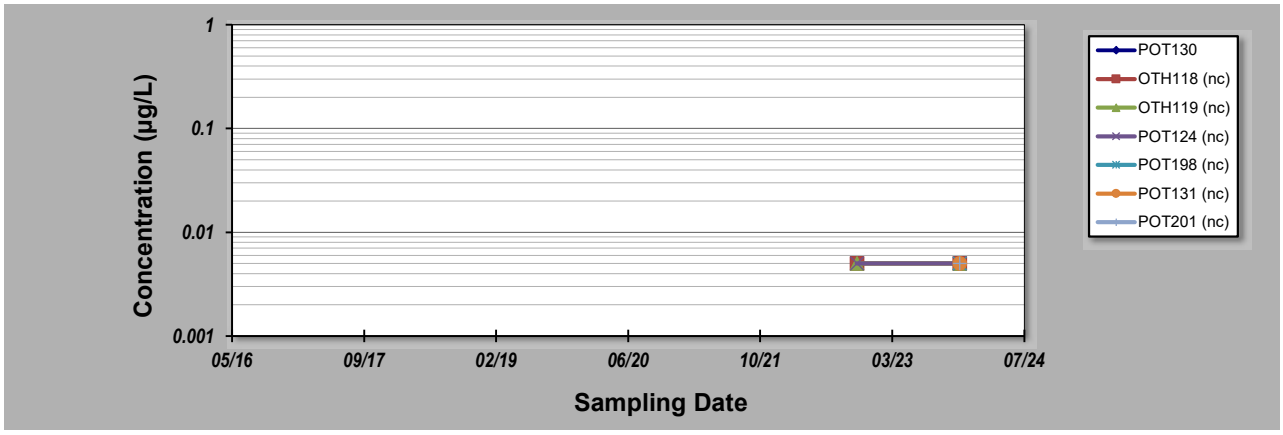
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOA (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	POT130	OTH118 (nc)	OTH119 (nc)	POT124 (nc)	POT198 (nc)	POT131 (nc)	POT201 (nc)
Sampling Event	Sampling Date	PFOA (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Oct-17							
2	Nov-17							
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18							
7	Jan-19							
8	Feb-19							
9	Nov-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Oct-21							
15	Nov-21							
16	Dec-21							
17	Nov-22		0.005	0.005	0.005			
18	Sep-23							
19	Oct-23							
20	Nov-23	0.005	0.005	0.005	0.005	0.005	0.005	0.005
21								
22								
23								
24								
25								
Coefficient of Variation:			0.00	0.00	0.00			
Mann-Kendall Statistic (S):			0	0	0			
Confidence Factor:								
Concentration Trend:								



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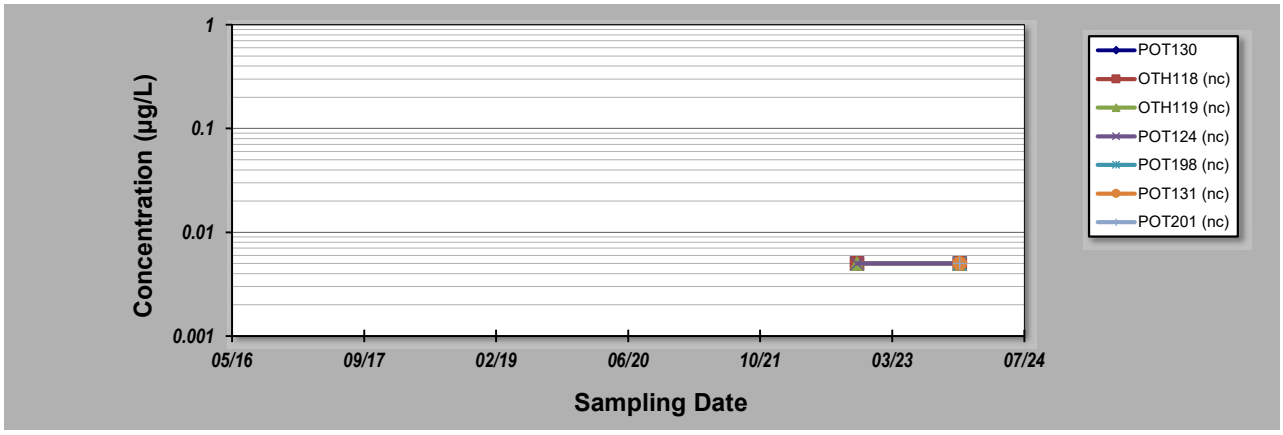
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOS + PFHxS (End of Dry Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	POT130	OTH118 (nc)	OTH119 (nc)	POT124 (nc)	POT198 (nc)	POT131 (nc)	POT201 (nc)
Sampling Event	Sampling Date	PFOS + PFHXS (END OF DRY SEASON) CONCENTRATION (µg/L)						
1	Oct-17							
2	Nov-17							
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18							
7	Jan-19							
8	Feb-19							
9	Nov-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Oct-21							
15	Nov-21							
16	Dec-21							
17	Nov-22		0.005	0.005	0.005			
18	Sep-23							
19	Oct-23							
20	Nov-23	0.005	0.005	0.005	0.005	0.005	0.005	0.005
21								
22								
23								
24								
25								
Coefficient of Variation:			0.00	0.00	0.00			
Mann-Kendall Statistic (S):			0	0	0			
Confidence Factor:								
Concentration Trend:								



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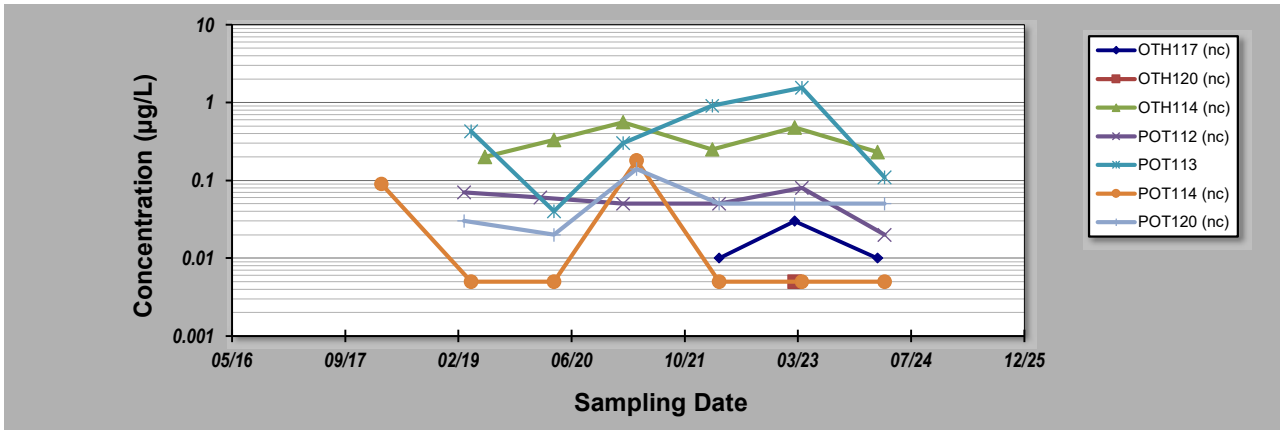
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOS + PFHxS (End of Wet Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	OTH117 (nc)	OTH120 (nc)	OTH114 (nc)	POT112 (nc)	POT113	POT114 (nc)	POT120 (nc)
Sampling Event	Sampling Date	PFOS + PFHXS (END OF WET SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Nov-17							
3	Jan-18							
4	Mar-18						0.09	
5	Apr-18							
6	Mar-19				0.07			0.03
7	Apr-19					0.43	0.005	
8	Jun-19			0.2				
9	Feb-20				0.06			
10	Apr-20			0.33		0.04	0.005	0.02
11	Nov-20							
12	Jan-20							
13	Feb-21			0.56	0.05	0.3		
14	Apr-21						0.18	0.14
15	Apr-22	0.01			0.05		0.005	0.05
16	Mar-22			0.25		0.91		
17	Mar-23	0.03	0.005	0.48				0.05
18	Apr-23				0.08	1.55	0.005	
19	Mar-24	0.01		0.23				
20	Apr-24				0.02	0.11	0.005	0.05
21								
22								
23								
24								
25								
Coefficient of Variation:		0.69		0.43	0.38	1.04	1.63	0.75
Mann-Kendall Statistic (S):		0		1	-6	3	-5	4
Confidence Factor:				50.0%	81.5%	64.0%	71.9%	70.3%
Concentration Trend:				No Trend	Stable	No Trend	No Trend	No Trend



Notes:

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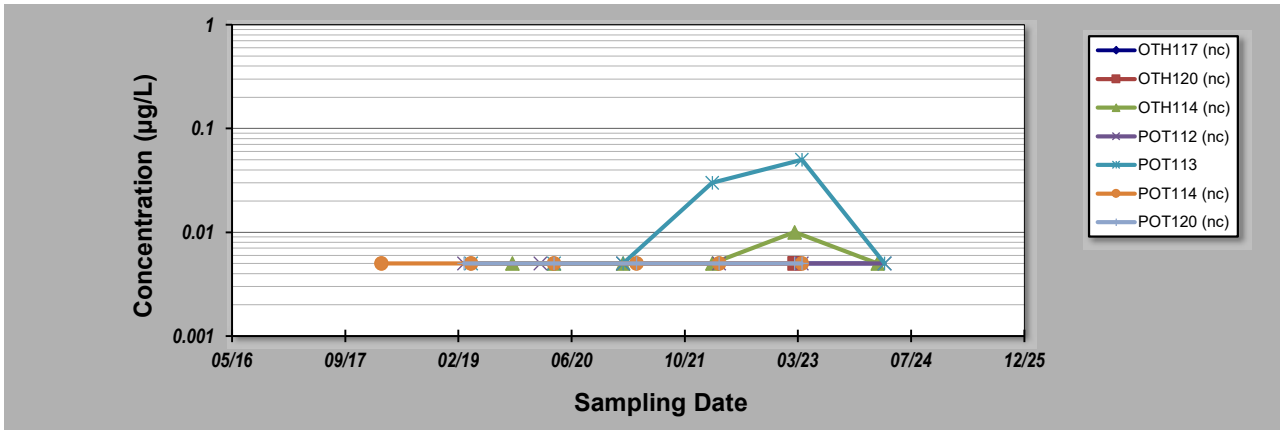
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOA (End of Wet Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	OTH117 (nc)	OTH120 (nc)	OTH114 (nc)	POT112 (nc)	POT113	POT114 (nc)	POT120 (nc)
Sampling Event	Sampling Date	PFOA (END OF WET SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Nov-17							
3	Jan-18							
4	Mar-18						0.005	
5	Apr-18							
6	Mar-19				0.005			0.005
7	Apr-19					0.005	0.005	
8	Oct-19			0.005				
9	Feb-20				0.005			
10	Apr-20			0.005		0.005	0.005	0.005
11	Nov-20							
12	Jan-20							
13	Feb-21			0.005	0.005	0.005		
14	Apr-21						0.005	0.005
15	Apr-22	0.005			0.005		0.005	0.005
16	Mar-22			0.005		0.03		
17	Mar-23	0.005	0.005	0.01				0.005
18	Apr-23				0.005	0.05	0.005	0.005
19	Mar-24	0.005		0.005				
20	Apr-24				0.005	0.005		
21								
22								
23								
24								
25								
Coefficient of Variation:		0.00		0.35	0.00	1.15	0.00	0.00
Mann-Kendall Statistic (S):		0		3	0	5	0	0
Confidence Factor:				64.0%	39.3%	76.5%	39.3%	39.3%
Concentration Trend:				No Trend	Stable	No Trend	Stable	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.

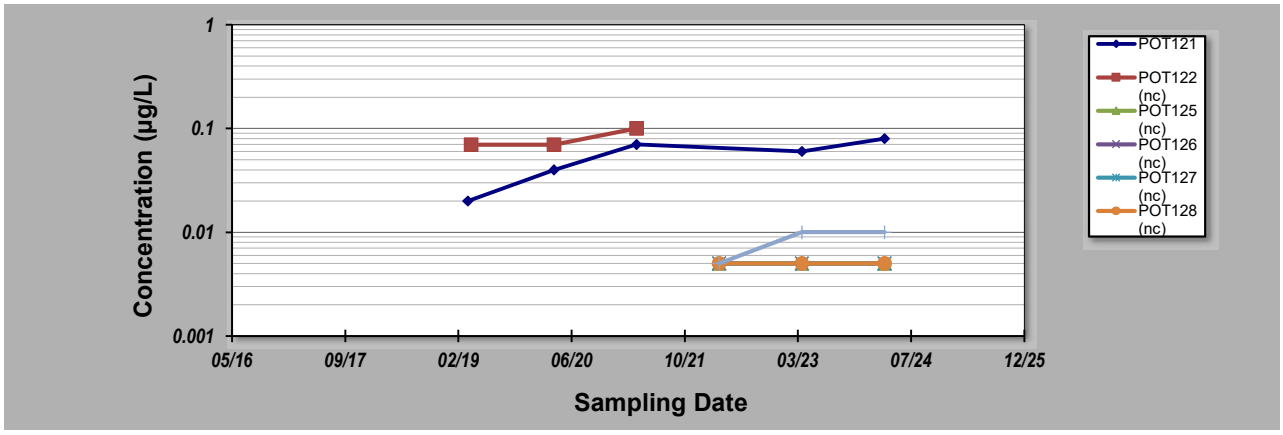
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOS + PFHxS (End of Wet Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	POT121	POT122 (nc)	POT125 (nc)	POT126 (nc)	POT127 (nc)	POT128 (nc)	POT129 (nc)
Sampling Event	Sampling Date	PFOS + PFHXS (END OF WET SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Nov-17							
3	Jan-18							
4	Feb-18							
5	Apr-18							
6	Dec-18							
7	Mar-19	0.02						
8	Apr-19		0.07					
9	Nov-19							
10	Apr-20	0.04	0.07					
11	Nov-20							
12	Feb-21							
13	Apr-21	0.07	0.1					
14	Oct-21							
15	Jan-22							
16	Apr-22			0.005	0.005	0.005	0.005	0.005
17	Mar-23							
18	Apr-23	0.06		0.005	0.005	0.005	0.005	0.01
19	Mar-24							
20	Apr-24	0.08		0.005	0.005	0.005	0.005	0.01
21								
22								
23								
24								
25								
Coefficient of Variation:		0.45	0.22	0.00	0.00	0.00	0.00	0.35
Mann-Kendall Statistic (S):		8	2	0	0	0	0	2
Confidence Factor:		95.8%						
Concentration Trend:		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.

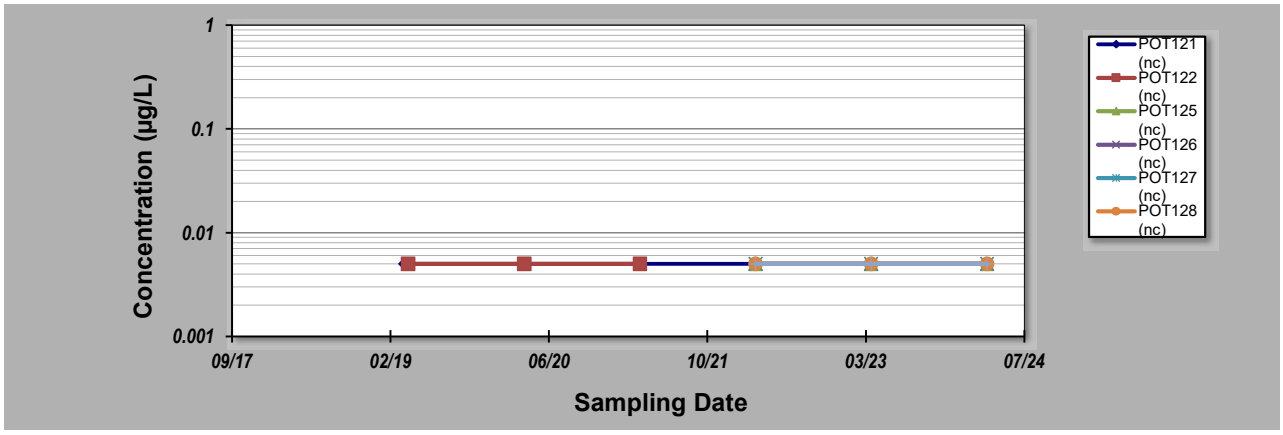
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOA (End of Wet Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	POT121 (nc)	POT122 (nc)	POT125 (nc)	POT126 (nc)	POT127 (nc)	POT128 (nc)	POT129 (nc)
Sampling Event	Sampling Date	PFOA (END OF WET SEASON) CONCENTRATION (µg/L)						
1	Dec-18							
2	Mar-19	0.005						
3	Apr-19		0.005					
4	Nov-19							
5	Apr-20	0.005	0.005					
6	Nov-20							
7	Feb-21							
8	Apr-21	0.005	0.005					
9	Oct-21							
10	Jan-22							
11	Apr-22			0.005	0.005	0.005	0.005	0.005
12	Mar-23							
13	Apr-23	0.005		0.005	0.005	0.005	0.005	0.005
14	Mar-24							
15	Apr-24	0.005		0.005	0.005	0.005	0.005	0.005
16								
17								
18								
19								
20								
Coefficient of Variation:		0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mann-Kendall Statistic (S):		0	0	0	0	0	0	0
Confidence Factor:		40.8%						
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.

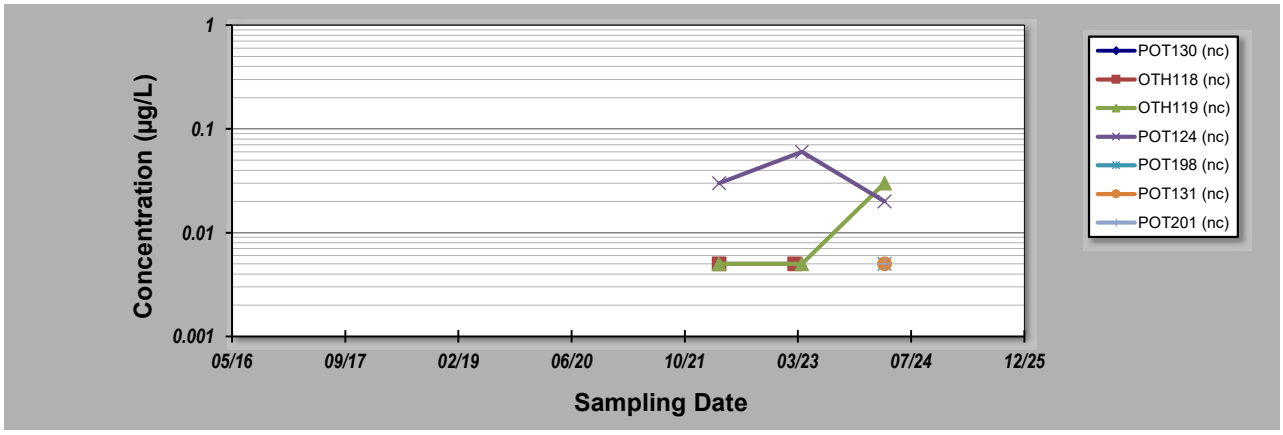
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOS + PFHxS (End of Wet Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	POT130 (nc)	OTH118 (nc)	OTH119 (nc)	POT124 (nc)	POT198 (nc)	POT131 (nc)	POT201 (nc)
Sampling Event	Sampling Date	PFOS + PFHXS (END OF WET SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Nov-17							
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18							
7	Jan-19							
8	Mar-19							
9	Nov-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Apr-22		0.005	0.005	0.03			
15	Mar-23		0.005					
16	Apr-23			0.005	0.06			
17	Mar-24							
18	Apr-24	0.005		0.03	0.02	0.005	0.005	0.005
19								
20								
Coefficient of Variation:		0.00	1.08	0.57				
Mann-Kendall Statistic (S):		0	2	-1				
Confidence Factor:								
Concentration Trend:								



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

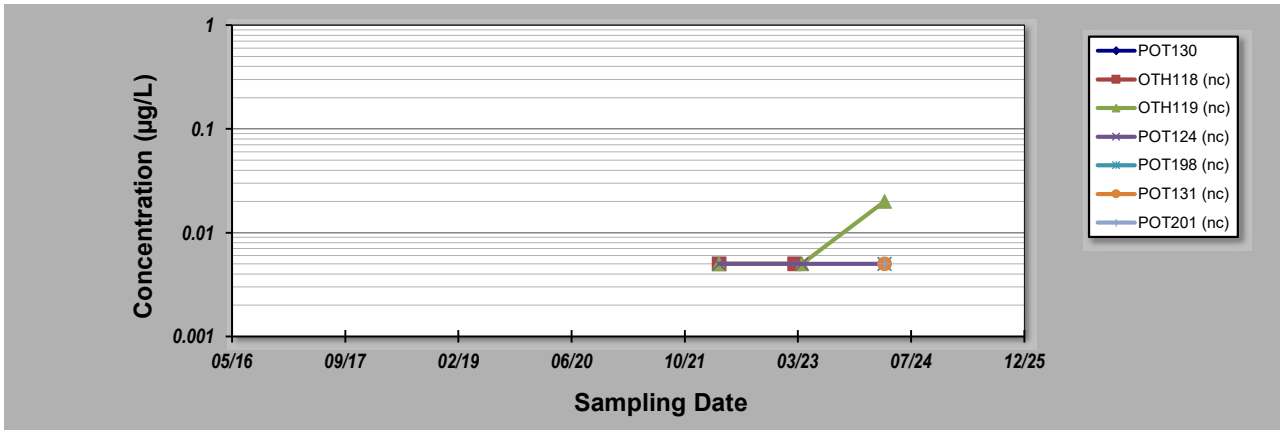
Legend

Contingency well analytical results presented

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	12-Jul-24	Job ID:	60612561
Facility Name:	RAAF TINDAL - Off-Base West Katherine Ri	Constituent:	PFOA (End of Wet Season)
Conducted By:	DDT	Concentration Units:	µg/L

Sampling Point ID:	POT130	OTH118 (nc)	OTH119 (nc)	POT124 (nc)	POT198 (nc)	POT131 (nc)	POT201 (nc)
Sampling Event	Sampling Date	PFOA (END OF WET SEASON) CONCENTRATION (µg/L)						
1	Sep-17							
2	Nov-17							
3	Jan-18							
4	Mar-18							
5	Apr-18							
6	Dec-18							
7	Jan-19							
8	Mar-19							
9	Nov-19							
10	Apr-20							
11	Nov-20							
12	Jan-20							
13	Apr-21							
14	Apr-22		0.005	0.005	0.005			
15	Mar-23		0.005					
16	Apr-23			0.005	0.005			
17	Mar-24							
18	Apr-24	0.005		0.02	0.005	0.005	0.005	0.005
19								
20								
Coefficient of Variation:			0.00	0.87	0.00			
Mann-Kendall Statistic (S):			0	2	0			
Confidence Factor:								
Concentration Trend:								



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Legend

Contingency well analytical results presented