Norfolk Island Airport

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PFAS Ongoing Monitoring Plan - Year 4 Monitoring Report

Document Information

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Norfolk Island Airport

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Executive Summary

Senversa Pty Ltd (Senversa) has been engaged by the Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts (DITRDCSA), to implement the fourth year of the Norfolk Island Airport perfluoroalkyl and polyfluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP). The PFAS OMP (Senversa, 2021d) establishes the ongoing monitoring actions required to assess the nature and extent of PFAS at the Norfolk Island Airport (the site) and surrounding catchments. The site location and surrounding catchments are indicated on **Figure 1.**

Scope and Objectives

The objectives of the PFAS OMP Year 4 event were to assess:

- Trends in PFAS concentrations in the environment.
- The effectiveness of the selected management options in managing current risks.
- Whether changing conditions exist which may result in changes in the risk profile (and therefore changes to the required management actions).

The monitoring event was undertaken in November 2025 and comprised PFAS analysis of:

- Tanks and taps on-site (Airport terminal, maintenance shed, fire station, and Airport Bore).
- Tanks and taps on council sites (works depot).
- Surface water along Mission Creek, Watermill Creek and the end of Cascade Creek and Headstone Creek.
- Private bores along Mission Creek.
- Additional locations, not in the OMP, to address data gaps. Broadly:
  - Drinking water points to confirm concentrations remain below the revised guideline levels.
  - Soil, produce and dam biota sampling following revised residential soil guideline levels.
  - Soil samples to further delineate PFAS source areas.

Summary of Results

The following key results have been reported:

- Airport Bore and the upper Mission Creek catchment surface water PFAS concentrations generally decreased between 2020 and November 2025, representing a statistically significant downwards trend in the Airport Bore, WWII Dam and MC_OMP01.
- PFAS concentrations have been variable over time in both the remaining Mission Creek surface water locations and Watermill Creek. Approximately half of the sampled locations reported PFAS concentrations marginally higher in 2025 than 2024. Most remained within the historical range.
- Concentrations in surface water generally decreased with increased distance from source areas.
- PFAS were detected in home grown produce grown in PFAS-impacted soil and Duck Dam sediments, requiring further assessment.
- Concentrations in water carting water were below the adopted assessment criteria. However, detections of PFAS for which guidelines are unavailable require further assessment.

Assessment of Management Actions

PFAS were below the Upper Trigger Values (UTVs) at all sample locations. This indicates that the selected management options are considered appropriate for the purpose of managing current risks identified in the Human Health and Ecological Risk Assessment (HHERA) (Senversa, 2021c). A number of point of use sample locations reported PFAS concentrations below the Lower Trigger Values (LTVs). This indicates that a reduction in monitoring and/or management may be warranted. This will be considered in the revised PMP.

The following risk pathways identified in the HHERA continue to require management, detailed in the draft PFAS Management Plan (PMP) (Senversa, 2021e):

1. Home consumption or public consumption of cattle, chicken eggs or other animal products where the animal drinks water sourced from Mission Creek.
2. Use of surface water from the Mission Creek Catchment for irrigation, drinking water or domestic uses. Use of groundwater for drinking water or domestic use from the Lower Mission Creek Catchment.
3. Use of groundwater from or nearby the airport or nearby surrounding area for any extractive use.
4. Drinking or washing water at public facilities formerly supplied by the Airport Bore.
5. Use of surface water or groundwater for drinking water or domestic use from the Upper Watermill Creek Catchment.
6. Exposures to freshwater aquatic ecosystems.

In addition, the following changes in management options and assessment should be considered:

- Stock watering: PFAS concentrations during this monitoring event remained above those measured in 2020-2021 sampling, following which it was assessed that further assessment/management was warranted. Further assessment and/or management of cattle access to PFAS impacted water sources requires consideration. Alternatively, measures to manage human exposure (e.g. livestock product consumption advice) could be considered.
- Airport Bore water use: The POET filtration system has been installed on the Airport Bore. While there is low exposure potential for the known uses of this treated water, continued testing of the treated water will be required to assess the ongoing effectiveness of the POET filtration system and whether further management is warranted. Suitable concentration threshold limits will require assessment prior to utilisation of this treated water for other purposes.
- Bore water carting: Further assessment of the quality of water carting water sources used for potable water supply is recommended to confirm detected PFAS concentrations and facilitate a more detailed assessment including consideration of PFAS compounds for which no DWG are available. It is noted that no unacceptable risk has been identified to-date.
- Home produce growing: Where PFAS was detected in home grown produce, further assessment is warranted which considers the nature of the produce in which exceedances were identified and likely consumption rates.
- Biota and sediment re-use: Based on a preliminary assessment, the re-use of biota from Duck Dam, e.g. for compost, is considered to pose a low and acceptable risk. The re-use of sediment should be avoided or appropriately managed to avoid increasing the level of risk on less-impacted sites.

The figure below summarises water uses for which risks are assessed to be low and acceptable, and water uses for which further assessment and/or management is required. The assessment is based on currently measured PFAS concentrations, known current uses of water in each catchment, and the current PFAS regulatory framework.

Water source	Risk Profile via Current Identified Exposure Pathways				
	Drinking Water	Stock watering	Produce irrigation	Chicken Watering	Freshwater Ecosystem Health
Mission Creek		🔍			
Lower Mission Creek Catchment Groundwater[1]		✓	✓	✓	NA
Airport Bore (untreated) & Upper Mission Creek Catchment Groundwater					NA
Watermill Creek		✓	✓	✓	
Cascade Creek		✓	✓	✓	
Headstone Creek	NM	✓	✓	✓	NM
Bore and tank water (outside Mission Creek Catchment)	✓	✓	✓	✓	NA

Key:

🔍	HHERA identified risks; further assessment and/or management required
	HHERA identified risks; management required
	HHERA identified risks; no current pathway identified
✓	Risks low and acceptable
NM	Not measured. PFAS not analysed at laboratory limit of reporting protective of this water use
NA	Not applicable, no complete exposure pathway

Notes: 1 At assessed groundwater bores beyond Douglas Drive.

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List of Acronyms

Acronym	Definition
ADWG	Australian Drinking Water Guidelines
AFFF	Aqueous film forming foam
ALS	Australian Laboratory Services
BoM	Bureau of Meteorology
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DITRDCSA	Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts
DO	Dissolved oxygen
DQI	Data quality indicator
DQO	Data quality objective
DSI	Detailed Site Investigation
DWG	Drinking Water Guidelines
EC	Electrical conductivity
EMNI	Emergency Management Norfolk Island
FSANZ	Food Safety Australia and New Zealand
FTS	Fluorotelomer sulfonic acid
ha	Hectare
HBGV	Health-based guideline value
HEPA	Heads of Environment Protection Authority
HHERA	Human health and ecological risk assessment
HIL	Health investigation level
km	Kilometre
LOR	Limit of reporting
LTV	Lower trigger value
mg/kg	Milligrams per kilogram

Acronym	Definition
mV	Millivolts
n	Number of samples
NA	Not applicable
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NHMRC	National Health and Medical Research Council
NIRC	Norfolk Island Regional Council
NM	Not measured
OMP	Ongoing monitoring plan
PFAS	Per- and poly- fluoroalkyl substances
PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexane sulfonate
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
PMP	PFAS management plan
POET	Point of entry treatment
PS	PFAS source
PSI	Preliminary site investigation
QAQC	Quality assurance and quality control
SAQP	Sampling and analysis quality plan
µg/L	Micrograms per litre
µS/cm	Micro siemens per centimetre
UTV	Upper trigger value

1.0 Introduction and Objectives

Senversa Pty Ltd (Senversa) has been engaged by the Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts (DITRDCSA) to implement the Norfolk Island Airport perfluoroalkyl and polyfluoroalkyl substances (PFAS) Ongoing Monitoring Plan (OMP). The OMP (Senversa, 2021d) established the ongoing monitoring actions required to assess the nature and extent of PFAS at the Norfolk Island Airport (the site) and surrounding catchments to ensure suitable management actions can be employed. The site location and surrounding catchments are indicated on **Figure 1**.

This report details the results of the PFAS OMP Year 4 monitoring event, undertaken in November 2025.

1.1 Background

Norfolk Island Airport PFAS investigations were initiated after a CSIRO-led[1] assessment of water resources identified elevated levels of PFAS in the Mission Creek water catchment in December 2019[2]. In January 2020, Senversa commenced a Preliminary Site Investigation (PSI) which found that legacy aqueous film-forming foam (AFFF) containing PFAS was used on Norfolk Island from the early 1980s until 2015 to supress liquid fuel fires and for fire training activities, and confirmed the presence of PFAS in the Mission Creek catchment, together with some other areas of the island (at lower concentrations). These findings were confirmed in a Detailed Site Investigation (DSI) and potentially unacceptable risks were quantitatively assessed in a Human Health and Ecological Risk Assessment (HHERA).

Based on the results of the DSI and the HHERA, risks were assessed as low and acceptable for many of the ways in which people might be exposed to PFAS in the environment, including drinking water. Due to the presence of PFAS in the environment, a draft PFAS Management Plan (PMP) was prepared. The strategy includes actions to manage PFAS sources on the Airport (aimed at reducing the migration of PFAS from the Airport over the longer term) and specific management actions to manage people's exposure to PFAS, including:

- Managing the use of water from Mission Creek for watering cattle or chickens.
- Continued management of water use for drinking water / domestic use more broadly.

The risks to people who might be exposed to PFAS through other uses of water was assessed to be low and these pathways were not included in the PMP.

Potentially elevated risks to ecosystems were identified. However, management options for ecosystems risks are limited. Specifically, remediation at the exposure point (e.g. within creek beds) is unlikely to be feasible or practicable, and unlike for human health exposure pathways, advisory notices to reduce exposure are not an option. As such, management options for ecosystems pathways are restricted to source management actions (which are covered in the PMP), and ecosystems risks are not otherwise the focus of the PMP.

The PFAS OMP was developed to support the implementation of the PMP by assessing changing conditions on-island to determine if the current management actions remain appropriate to manage risks. A Sampling and Analysis Quality Plan (SAQP) was prepared to guide the field works proposed to be undertaken during completion of the PFAS OMP.

[1] Commonwealth Scientific and Industrial Research Organisation
[2] Commonwealth Scientific and Industrial Research Organisation (2020). *Norfolk Island Water Resource Assessment Hydrology Report. A summary report from the CSIRO Norfolk Island Water Resource Assessment, CSIRO, Australia.*

Key reports are listed below:

- Senversa, 2021a. *Preliminary Site Investigation into Per- and Polyfluoroalkyl Substances (PFAS), Norfolk Island Airport,* revision 2, dated 3 February 2021.
- Senversa, 2021b. *Detailed Site Investigation into Per- and Polyfluoroalkyl Substances (PFAS), Norfolk Island Airport*, revision 5, dated 12 November 2021.
- Senversa, 2021c. *Human Health and Ecological Risk Assessment (PFAS), Norfolk Island Airport,* revision 3, dated 12 November 2021.
- Senversa 2021d. *Ongoing Monitoring Plan, Norfolk Island Airport,* revision 0, dated 24 November 2021.
- Senversa 2021e. *PFAS Management Plan, Norfolk Island Airport,* revision 1, dated 10 December 2021.
- Senversa, 2022a. *PFAS Sampling and Analysis Quality Plan – Year 1 Ongoing Monitoring,* revision 0, dated 3 May 2022.
- Senversa 2022b. *PFAS Ongoing Monitoring Plan - Year 1 Monitoring Report, Norfolk Island Airport,* revision 1, dated 14 October 2022.
- Senversa 2023. *PFAS Ongoing Monitoring Plan – Year 2 Monitoring Report, Norfolk Island Airport,* revision 1, dated 11 October 2023.
- Senversa 2024. *PFAS Ongoing Monitoring Plan – Year 3 Monitoring Report, Norfolk Island Airport,* revision 1, dated 16 October 2024.

1.2 Objectives

The overall objective of the PFAS OMP is to establish the ongoing monitoring required to assess:

- Trends in PFAS concentrations in the environment.
- The effectiveness of the selected management options in managing current risks.
- Whether changing conditions exist which may result in changes in the risk profile (and therefore changes to the required management actions).

The objective of the Year 4 monitoring event was to meet the requirements of the PFAS OMP for the fourth annual monitoring event and to assess temporal variations in PFAS concentrations.

Information from the monitoring program will be used on an ongoing basis to identify whether the currently selected management actions should change. Future changes to the management actions could be:

- **Additional** required actions (for instance where additional water uses are identified, or if PFAS concentrations in the environment increase).
- **Reduced** required actions (for instance where lower PFAS concentrations in the environment mean that previously established management actions are no longer necessary to manage risks).

1.3 Scope of Works

To achieve the above objectives, Senversa completed the following scope of work detailed in the OMP:

- Water sampling of tanks and taps on-site (Airport terminal, maintenance shed, fire station, and Airport Bore).
- Sampling of tanks and taps on council sites (works depot).
- Sampling of surface water along Mission Creek, Watermill Creek and the end of Cascade Creek and Headstone Creek.
- Sampling of private bores along Mission Creek.
- Additional sampling, not in the OMP, to address data gaps:
  - Drinking water sample locations to confirm concentrations remain below the revised guideline levels including the hospital, electricity depot, waste management centre, Bureau of Meteorology (BoM) station, additional fire station taps, additional airport terminal taps, council office and permitted water carting sources.
  - Residential soil and produce sampling following revised residential soil guideline levels.
  - Dam biota and sediment sampling to indicate risk of application to land following dam clearing.
  - Soil samples to further delineate potential source areas at Ball Bay fuel storage area and down pipe supplied by the Airport Bore.
- Preparation of this PFAS OMP Year 4 Monitoring Report.

2.0 Background

2.1 Airport Details

Site identifying details are summarised below.

Table 2-1: Airport Details

Item	Relevant Site Information
Site Location	The Airport location is indicated on **Figure 1**.
Site Area	~120 hectares (ha).
Site Use	The Airport layout is indicated on **Figure 2A**. Key site features include: • Operational Airport with two runways. • Aircraft and Airport operational infrastructure in the northeast portion of the site, including terminals, storage and cargo facilities. • Maintenance facilities in the mid-eastern portion of the site. • Fire station in the mid-eastern portion of the site, south of the maintenance facilities. • Waste management centre, BoM station and electricity depot in the northern portion of the site. • Wastewater treatment plant in the central northern portion of the site. • The fire training facility. • Airport groundwater bore, pumped to a concrete holding tank prior to treatment through a point of entry treatment (POET) filter.
Zoning	• Site: light industry land use. • Surrounding land: rural and rural residential land use.

2.2 Environmental Setting

The environmental setting is summarised below in **Table 2-2**. Further environmental setting details are outlined in the DSI (Senversa, 2021b).

Table 2-2: Environmental Setting

Item	Relevant Site Information
Surrounding Land Uses	• **North**: Mission Creek is located to the immediate north-west of the site followed by St Barnabas Chapel, rural properties and Headstone Reserve. The Norfolk Island National Park is located approximately 2 kilometres (km) to the north of the site. • **East**: Northeast of the site is the township of Burnt Pine, consisting of mixed land use. The land to the immediate east consists of rural and rural residential land. • **South**: Rural residential properties, Point Ross and Bumbora Reserve followed by the South Pacific Ocean approximately 400 metres (m) from the most southern point of the site. • **West**: Rural residential properties, Rocky Point and 100 Acres Reserve followed by the South Pacific Ocean approximately 400 m from the most western point of the site.
Climate	Norfolk Island is classified as a sub-tropical climate which is primarily affected by high-pressure systems which fluctuate over the island annually. The mean maximum temperatures on the island range from 18°C in winter to 25°C in summer with a high average relative humidity of 73% to 81% (BoM, 2022). Norfolk Island's median annual rainfall is 1,280 mm with the highest rainfall between April to August and monthly means of approximately 120 to 143 mm. The driest month is typically November with an average rainfall of 73 mm (BoM, 2024). Rainfall on the island between 2016 and early 2020 was below average and little to no rain fell on the island between October 2019 and February 2020 (BoM, 2022). Above average rainfall was recorded from April to November 2025 preceding the Year 4 monitoring event.

Item	Relevant Site Information
Topography	The Airport site is generally flat, between 95 and 115 m above sea level (Geoscience Australia, 2020). The surrounding island undulates rapidly with several water catchment zones creating steep valleys and low-lying creeks.
On-site Drainage Networks	On-site stormwater in the north-east of site drains into a low-lying area on the boundary of the site into a stormwater drainage pipe which runs perpendicular to and under the road leading to the waste treatment centre. This stormwater drainage is understood to discharge into Mission Creek. Across the Airport in general, stormwater is expected to run towards the site boundary, away from the runways.
Hydrology	Creeks are largely ephemeral, flowing only during rainfall events. Water catchment zones are shown on **Figure 1**. Mission Creek, Headstone Creek, Watermill / Town Creek and Rocky Point Creek are considered down-gradient of the Airport, with the Mission Creek Catchment considered the most vulnerable to PFAS impacts migrating from the Airport due to historical fire training activities undertaken on that side of the Airport which used AFFF containing PFAS. All creeks discharge to the South Pacific Ocean.
Geology and Soils	Norfolk Island is the erosional remnant of Pliocene aged volcanic centres located on a north trending continental ridge between New Zealand and North Caledonia (Abell, R S & Falkland A C, 1991). The island consists of the former shield volcano (Mt Pitt) and horizontal basalt flows. The prominent soil type found at and surrounding the site is the Rooty Hill Clay.
Acid Sulphate Soils	Peaty acid sulfate soils are present in the lower landscape portion of the island, with the largest known area located in the lower portion of the Watermill Creek Catchment.
Hydrogeology	The following hydrostratigraphic sequence is recorded (Abell, 1993): • Weathered volcanic mantle: Major aquifer on the island, porous but clayey. The upper water table on Norfolk sits within the weathered mantle. • Basaltic lavas: Heterogeneous water-bearing systems, dominated by water movement through fractures, joints and bedding. • Vertical movement of groundwater through fractures in the basalt likely form localised, semi-confined aquifers within tuff beds and fragmented layers. The heterogeneous nature of basaltic aquifers results in a complex groundwater flow regime. In general, groundwater flow follows, to a subdued degree, topographic features, discharging to surface water bodies and further towards the coastline.
Terrestrial Environments	Limited on-site flora and fauna are present due to the highly modified nature of the Airport environment. Prior to European settlement, Norfolk Island was dominated by subtropical rainforest and native flora of which over 30% is endemic (CSIRO, 2020). A large proportion of the island has been cleared for farmland used for grazing or cropping, with intact native communities being largely restricted to the 6.5 km^2 Norfolk Island National Park centred around Mount Bates and Mount Pitt.

2.3 PFAS Source Areas

The PSI and DSI identified 17 confirmed or potential PFAS source areas across the island. Generally, the most significant source areas ('Group 1 Source Areas') were locations where there was repeated application of foams and concentrate.

Group 1 Source Areas were confirmed through soil testing and include the following, located on the airport:

- PFAS Source (PS) Area 01: The former fire station and foam shed.
- PS Area 02: Flushing out area in the northeast corner of the site.
- PS Area 03: The former drill ground south-west of the former fire station in the northeast portion of the site. This area is now utilised by the waste management centre, which includes a composting facility.
- PS Area 04: Current fire drill area along the northern site boundary.
- PS Area 05: The airport maintenance depot where general maintenance of fire trucks historically occurred.
- PS Area 06: The current fire station.

Other source areas that were considered to be less significant based on frequency of AFFF application were identified and grouped as follows:

Group 2 Source Areas (PS Areas 7-11) – Areas where legacy AFFF concentrate and / or foam was used or stored more than once, but with less frequent rates of application than Group 1. Also includes secondary source areas like the wastewater treatment plant on the Airport (PS11), which is considered likely to be a higher source of PFAS flux than the other Group 2 Source Areas.

Group 3 Source Areas (PS Areas 12-15) – Areas where a single application of foams occurred due to an incident or a one-off event.

Group 4 Source Areas (PS Areas 16 & 17) – Areas where no AFFF is known to have been used, however water containing elevated concentrations of PFAS used.

Key source areas are indicated on **Figure 2-1** below and appended **Figure 2A** and **2B** and further information on potential PS Areas is provided in the DSI.

Figure 2-1: PFAS Source Areas

2.4 Water Sources and Use

A water use survey was conducted during the DSI (Senversa, 2021b) to identify potential PFAS migration and exposure pathways across the island. The understanding of current water use is refined during each subsequent monitoring event through consultation with the DITRDCSA on-island team, Norfolk Island Regional Council (NIRC) and private property owners contacted for sampling. The Year 4 monitoring event date was announced in the local newspaper. Available key information on water sources and use is summarised below, which supersedes past understanding presented in earlier reports.

2.4.1 Groundwater Source

Council-provided survey data indicates that there are 228 active groundwater bores, 38 dry bores and 10 “contaminated” bores across the island (Senversa, 2021a). Other sources indicate approximately 450 bores exist across the island (Abell, 1993). It is understood that not all bores on the island are registered with the NIRC or surveyed for elevation or location.

Groundwater is known to be extracted for limited drinking water supplied by water carters, and for stock watering (chickens and cows), refer to **Sections 2.4.3** and **2.4.4.** There is no evidence to suggest that groundwater is extracted for recreational purposes (e.g., to fill a swimming pool).

On the Airport, there is one known groundwater well that was not in use at the time of the investigation. Immediately off-site, a second 'Airport Bore' is operational. Water from the bore is pumped into a concrete holding tank, then filtered through a POET filter, and finally supplied for a range of uses via either pipework or the Ben Christian Down Pipe near the waste management centre access track just off Douglas Drive (see further discussion in **Section 2.4.2**). The down pipe was previously referred to as the Airport Truck Fill and was locked at the time of the Year 4 monitoring event.

2.4.2 Airport Bore Water Use

Information on the Airport Bore water treatment and use has been provided progressively by NIRC and updated during the Year 4 monitoring event, summarised in **Table 2-3**. Due to the anecdotal nature of some information, pipework connection records sometimes contradict across monitoring events and PFAS analysis results have been assessed in **Section 5.3** to confirm the understanding presented below. Not all locations presented below were monitored during the Year 4 monitoring event, having previously been assessed during the DSI (Senversa, 2021c).

Since at least June 2024, the Airport Bore water has been pumped to the concrete holding tank then filtered via a POET filter prior to use. The filter was previously located at the Fire Station where it was used to filter water used for equipment flushing. NIRC tests the treated water quarterly to confirm filter efficacy. Results of the NIRC testing are further discussed in **Section 5.3.**

Table 2-3: Airport Bore Water Use Summary

Area / Sample Location	Historical Water Source	Current Water Source	Description
AIRPORT (ONSITE)			
Airport Bore Tank	Airport Bore	Airport Bore	Airport Bore sampled from concrete tank adjacent former council offices. Use as holding tank before water is currently treated via POET and historically pumped to uses below.
A-TANK 1	Airport Bore	Rainwater	Open water pit within building now filled via rainwater.
Airport tanks A_TANK 2 and A_TANK 3 (new tanks since 2020 PSI sampling)	Rainwater	Rainwater	Tanks have been connected to buildings within the airport precinct.
Airport Terminal Bathrooms and drinking fountains	Airport Bore	Rainwater	Historically sourced from Airport Bore, now sourced from new airport rainwater tanks. Plumbing has not been replaced.
Maintenance Shed at Airport (A_TAP3)	Airport Bore	Rainwater	Water now sourced from new rainwater tanks.
Former Fire Station - Mechanical Shed adjacent airport terminal and Gate 1 (A_TAP4)	Airport Bore	Airport Bore	Airport bore water may still be connected based on PFAS concentrations detected, however non-use warnings in place and the kitchen was not in use during the 2025 monitoring event (NIRC, 2025).
BoM Office (A_TAP5)	Airport Bore	Rainwater	Plumbing has not been replaced.
Electricity Depot	Airport Bore	Rainwater	Plumbing has not been replaced.
Waste Management Centre	Airport Bore	Rainwater	Plumbing has not been replaced.
WWTP	Airport Bore	Treated Airport Bore	Piped water used to flush the water treatment plant.

Area / Sample Location	Historical Water Source	Current Water Source	Description
Current Fire Station taps (kitchen, laundry, toilets) (FRE_TAP1, TAP3, TAP5)	Airport Bore	Rainwater, desalinated water	Water supply transferred to rainwater. Connection was then mistakenly made to rainwater tanks that contained a PFAS-impacted inner liners sometime between June 2023 and June 2024. Following this discovery, temporary plumbing was installed for the kitchen, the bathrooms and the laundry in July 2024 connected to a desalinated water tank. Reconnection to relined rainwater tanks planned.
Current Fire Station Emergency Management Norfolk Island (EMNI) kitchen taps (FRE_TAP6)	Airport Bore	Rainwater	It is understood from discussions with NIRC that water is supplied by the relined rainwater tanks noted above. The plumbing has not been replaced.
Fire Hydrants on Airport (FRE_TAP2)	Airport Bore	Treated Airport Bore & rainwater	Piped under runway to two concrete underground storage tanks. Used for firefighting, fire systems testing, firefighting training and fire truck flush outs. More detail provided below.
Former Council Offices at Airport (COUNCIL_TAP1, TAP2)	Airport Bore	Rainwater	Historically sourced from Airport Bore, now sourced from new airport rainwater tanks. The offices were not in use during the 2025 monitoring event.
HOSPITAL (OFFSITE)			
Hospital Tank - concrete underground (PWS_HOSP_TANK1)	Airport Bore	Rainwater	Historically sourced from airport bore via underground line and filling of tanks. All tanks are connected to hospital master tank and filled with rainwater collected from hospital roof.
Hospital Tank - all other tanks (PWS_TANK2-TANK8)	Rainwater	Rainwater	All tanks are connected (feed in) to master tank PWS_HOSP_TANK1
Taps (PWS_HOSP_TAP1-TAP21)	Airport Bore	Rainwater	Through PWS_HOSP_TANK1. Plumbing and filters were replaced in late 2020.
WIDER NORFOLK ISLAND INVESTIGATION AREAS			
Council Works Depot (DEPOT_TANK1,TANK2 and TANK3)	Airport Bore	Rainwater	Underground concrete Tank1 andTank2 previously supplied by Airport Bore Water. Now supplied by rainwater and used to supply the kitchen tap and for emergency firefighting. New Tank3 installed at rear of depot for rainwater and used for truck washing at the mechanical sheds in the works depot.
Council Works Depot kitchen taps (DEPOT_TAP1)	Airport Bore	Rainwater	Historically sourced from Airport Bore, now sourced from Tank2.
Ben Christian Down Pipe	Airport Bore	Treated Airport Bore	Airport Bore water was publicly accessible via the down pipe until 2020. The down pipe is now locked and in use by NIRC for the public uses described in this table.
Public Toilets	Airport Bore	Treated Airport Bore	Filled via water carter from Ben Christian Down Pipe during low rainfall.
Quarry Dust Suppression	Unknown	Treated Airport Bore	NIRC advised in 2025 that treated Airport Bore water, carted from the Down Pipe, is utilised for this purpose. The duration of use is unknown.
Roads Depot Gravel Washing for Road Maintenance	Unknown	Treated Airport Bore	NIRC advised in 2025 that treated Airport Bore water, carted from the Down Pipe, is utilised for this purpose. The duration of use is unknown.

Along with firefighting, the underground fire station tanks are used for fire systems testing, fire truck flush outs and firefighting training. It is understood flush outs of the fire trucks occurred up to three times a week and historically took place in the unsealed area to the south of the former fire station (PS02) where it would runoff towards Mission Creek. Currently, the fire station uses approximately 15,000 L of water once per fortnight for a live fire training test (NIRC, 2020).

2.4.3 Potable Drinking and Stock Water Use

Potable drinking and stock water use are understood to remain largely unchanged since the water use survey was undertaken in 2020.

Bore water is not widely consumed in times of high rainfall and potable and stock watering water are generally supplied by rainwater tanks. In times of drought, when tank water is not readily available, bore water may be extracted for drinking water purposes (NIRC, 2018). In 2019 in response to extreme water shortages on-island, an Australian Defence Force desalination plant was installed and operated for an initial 6-week period before being re-established in 2020 to assist with suitable potable water supply for the Airport Runway Reseal Project. The plant was permanently re-installed in 2024 to provide an alternate water supply during dry periods.

Water carting from groundwater bores is understood to remain operational and was investigated as part of the PSI. Prior to the Year 4 monitoring event, NIRC advised that four water carters were in operation. Limited information on the location and nature of the water carting water sources is available due to the locations of assets being kept largely confidential by the water carters.

Bore water is known to be extracted for stock watering (cows) on at least one property in the Mission Creek catchment. Mission Creek surface water is known to be currently pumped for stock watering (cows) on at least one property and historically for chickens on one property (ceased in 2023). Water extracted from Watermill Creek is also understood to be used for livestock watering between the Airport and the Duck Dam. Both creeks are accessible to cattle on multiple properties and utilised for stock watering, including publicly accessible Mission Pool utilised by road side cattle herds.

NIRC advised residents currently have access to water from one public standpipe adjacent to Headstone Creek (Headstone Dam). This water is understood to be used for non-potable uses (including stock watering).

2.4.4 Irrigation Water Use

Irrigation water use is understood to remain largely unchanged since the water use survey was undertaken in 2020.

Irrigation water is understood to not be used on-airport, however grass on-site may be affected by rainfall runoff over impacted soils and over areas of historical AFFF use (NIRC, 2020).

Irrigation water derived from bores and pumped surface water is used across the island for small commercial and private residential gardens. CSIRO (2020) estimated approximately 10.8 ha of cultivated land is used for commercial food production, up to 75% of which may be irrigated.

An additional 5 ha of land is estimated to be used for medium to large scale vegetable gardens. It is unknown to what extent these gardens are irrigated and the source of water across the island more broadly (CSIRO, 2020). The water use survey and OMP monitoring have focused on Mission and Watermill Creek Catchments where elevated PFAS concentrations have historically been identified. One property was previously identified in these catchments where water was pumped from Mission Creek to irrigate home produce but has been discontinued since at least 2023. One property was also identified in the Mission Creek Catchment where bore water was in use for home produce irrigation during low rainfall, and this water use was active during the 2025 monitoring event.

It is understood that water is not widely used for irrigation of grassed paddocks (i.e., for livestock grazing) on the island.

3.0 Sampling and Analysis Approach

3.1 Sampling Analysis and Quality Plan

The SAQP details the data quality objectives (DQOs), data quality indicators (DQIs) and assessment methodology of the monitoring, included in **Appendix A.** Deviations from the SAQP are summarised in the table below.

Table 3-1: Summary of deviations from the SAQP

Item	Relevant Site Information
Moved Sample Location	• MC_OMP04a was collected slightly upstream of usual location MC_OMP04 due to thick vegetation. Similarly, MC_OMP05a was collected slightly upstream of usual location MC_OMP05. • MC_OMP07a was collected upstream of MC_OMP07 across Douglas Drive as no access was provided to the MC_OMP07 and MC_OMP08 access property.
Sample Not Collected	No access was provided to MC_OMP08 access property, and this sample was not collected. Samples MC_OMP07a and MC_OMP09 up and downstream of this location were collected.
Alternate Sample Location	• As in the Year 2 and 3 Monitoring Events, ID013_BORE was sampled in lieu of ID013_SW01, as the property owner advised that the bore was now being used instead of the pumped creek water (SW01) for fruit tree and garden irrigation. ID013_BORE had previously been disused due to high salinity. • No access was provided to ID015_BORE. ID019_BORE, not currently in use, was sampled in lieu of this location.
Sample Not Analysed	DEPOT_TANK3 was not analysed as it was confirmed with NIRC that this tank is supplied only with rainwater and has not recorded PFAS above the laboratory limit of reporting (LOR) during the previous three monitoring events.
Additional Samples Analysed	In addition to the OMP SAQP scope of works, additional monitoring was undertaken as part of the Year 4 event, detailed in **Table** 3-4**.**

Biota and soil sampling undertaken during the Year 4 monitoring event were not included in the SAQP methodology. The sampling methodology is detailed below.

Table 3-2: Additional Sampling Methodology

Activity	Description and Further Information
Biota Sample Collection	Biota samples were collected in consultation with the property manager (NIRC or the property owner as applicable) to sample plant material meeting the following criteria: • Most prevalent species or for home produce, with the highest consumption potential, present in target area. • Distribution of species such that differences in PFAS uptake are captured. For example, a representative selection of leafy, fruiting and root produce may be sampled. Biota samples were collected with a gloved hand and placed directly into laboratory supplied sample jars using disposable nitrile gloves. Large samples, e.g. tomato, were first cut with a knife, decontaminated prior to use. A dry sample weight of 10 g was required for laboratory analysis.
Biota Sample Preservation	To meet biosecurity import requirements, biota samples were preserved by desiccation in silica beads directly in the sample jar in a ratio of one part plant material to ten parts silica beads.
Soil Sample Collection	Soil samples were collected from the near-surface using a gloved hand with the aid of a small hand trowel/shovel and transferred into sample jars using disposable nitrile gloves. The trowel was decontaminated between sampling locations.

Activity	Description and Further Information
Soil Sample Preservation	Refer to water sample preservation presented in the SAQP, included in **Appendix A.**

3.2 Monitoring Conducted

Sampling locations, excluding samples collected on private properties, are indicated on **Figure 1**.

Australian Laboratory Services Pty Ltd (ALS) was the primary analytical laboratory for soil, sediment, water and biota samples and Envirolab was the secondary laboratory. Both laboratories are National Association of Testing Authorities (NATA) accredited for the analyses conducted. All samples were analysed for the extended PFAS suite of 28 analytes.

Laboratory results and field water quality observations were uploaded to the Esdat[3] database.

Table 3-3: PFAS OMP Year 4 Sample Location Summary

Sample Purpose	Sample Location	Number of Locations	Sample IDs	Sample Media
Creek Sampling	Mission Creek	11	WWII_DAM, MC_OMP01 to MC_OMP07a, MC_OMP09 to MC_OMP11	Surface water
	Watermill Creek	5	WC_OMP01 to WC_OMP05	
	Cascade Creek	1	COCKPIT_SW01	
	Headstone Creek	1	PWS_HEAD_DAM	
Irrigation Water	Mission Creek Catchment groundwater	2	ID013_BORE[2, 3] ID016_BORE[2]	Point of use water
Stock Water	Mission Creek Catchment groundwater and surface water	2[1]	ID014_BORE[4] ID019_BORE[2] *(MC_OMP09 and MC_OMP10[1])*	
Managed Water Supplies	On-Airport	5	AIRPORT_BORE[2, 5] FRE_TAP1 FRE_TAP2 A_TAP1 A_TAP4	
	Off-Airport	3	DEPOT_TAP1 DEPOT_TANK1 DEPOT_TANK2	
Total Primary Samples		**30**		

Table notes:
1. There are 5 samples relevant for stock watering, however only two unique samples (ID014_BORE and ID015_BORE, used for cattle watering) not also collected for another purpose. MC_OMP08, MC_OMP09 and MC_OMP10 (creek locations with possible cattle access in the absence of management) are included in the total sample numbers for creek sampling.
2. Groundwater location.
3. ID013_BORE analysed in lieu of ID013_SW01, refer **Section 3.1**.
4. Pumped surface water location.

[3] Environmental data management software.

5. AIRPORT_BORE sample is collected from the above-ground concrete holding tank (pre-treatment) adjacent to the POET filtration system and former council offices on the airport.
6.Green text indicates samples analysed for trace PFAS analysis, perfluorooctane sulfonate (PFOS) LOR 0.002 micrograms per litre (µg/L).

In addition to the OMP SAQP scope of works, additional monitoring was undertaken as part of the Year 4 event, detailed in **Table 3-4**. The additional monitoring was undertaken to address the following identified data gaps:

- Updated PFAS drinking water guidelines (DWG) have been released in the Australian Drinking Water Guidelines (ADWG) in June 2025. The 2025 revised DWG for PFOS is below the LOR utilised in previous analysis, further discussed in **Section 3.3.3**. As such, where PFOS was previously not detected in water used for drinking water, these samples have been re-analysed for trace level PFAS, indicated in green in **Table 3-3** and **Table 3-4**.
- Updated human health investigation levels for soil have been released in the National Environmental Management Plan (NEMP) in March 2025. The revised PFOS Human Health Investigation Level (HIL) for residential use with accessible soil (HIL-A) is 0.003 milligrams per kilogram (mg/kg). Soil PFOS concentrations off-airport commonly exceeded this revised investigation level, including at two residential properties with an identified PFAS source. One of these two properties was identified to grow produce for home consumption. Further soil and produce sampling was undertaken at this property.
- Two previously identified PFAS source areas at the Ball Bay fuel storage area and Ben Christian down pipe supplied by the Airport Bore were further investigated to better understand whether PFAS impacts to soil requiring management were present. Sampling was not undertaken with the objective of delineation of impacts and was designed to detect the presence of gross contamination requiring further action.
- NIRC advised that Duck Dam has previously (prior to 2020) been routinely cleared of vegetation and sediment to reduce risk to cattle and maintain the structure. Clearing has been delayed since this date due to uncertainty with respect to vegetation and sediment PFAS concentrations and required management. Preliminary PFAS analysis was undertaken to inform management of these waste materials following removal.

Table 3-4: OMP Additional Sample Location Summary

Sample Purpose	Sample Location	Sample Matrix	Details	Sample IDs
Managed Water Supplies	Airport terminal departure lounge drinking fountain	Water	Supplied by rainwater tanks, previously supplied by the airport bore.	A_TAP15
	BoM Station kitchen		Supplied by rainwater tanks, previously supplied by the airport bore.	A_TAP5
	Electricity Depot kitchen		Supplied by rainwater tanks, previously supplied by the airport bore.	ELEC_TAP1
	Waste Management Centre kitchen		Supplied by rainwater tanks, previously supplied by the airport bore.	WASTE_TAP1
	Council Office kitchen		Supplied by rainwater tanks and new plumbing. This sample was collected as a control/background sample for the trace PFAS analysis.	COUNCIL_TAP
	Fire Station		EMNI kitchen tap. Supplied by rainwater, previously supplied by airport bore water.	FRE_TAP6

Sample Purpose	Sample Location	Sample Matrix	Details	Sample IDs
	Hospital		Hospital taps previously sampled following filter and plumbing replacement. Re-sampled during the Year 4 monitoring event at a lower LOR to capture the revised drinking water guideline thresholds. Locations selected to align with previous monitoring and targeting main water use points. Hospital advised that the dialysis room is no longer in use.	PWS_HOSP_TAP1 PWS_HOSP_TAP3 PWS_HOSP_TAP4 PWS_HOSP_TAP6 PWS_HOSP_TAP8
Potable Water Use	Water carting bore water	Water	Two of the four identified water carters authorised testing of bore water sources. Both WC-03_BORE and WC-04 samples were collected from taps connected directly to pumped bores. This is to distinguish from WC-03 water which was also collected in 2021 from a water carting truck and tank filled with carted water.[2]	WC-03_BORE WC-04
Soil and Sediment	PFAS source area on residential property	Soil	Soil tested within vegetable garden of residential property.	ID008_SS2
	Ben Christian down pipe		Soil below the down pipe analysed given historical truck filling with PFAS impacted water at this location.	A_TRUCKFILL_SS1
	Ball Bay fuel storage area		Soil within the firefighting water retention basin and adjacent the two PFAS drum storage areas.	BALL_SS3 BALL_SS4 BALL_SS5
	Duck Dam	Sediment	Sediment from Duck Dam was analysed to manage proposed desilting activities.	WC_OMP04_DUCKDAM
Biota	PFAS source area on residential property	Biota	Representative samples analysed from vegetable garden including tomato, zucchini, silver beet and parsley.	I008_BIOTA1 to ID008_BIOTA4
	Duck Dam		Predominant vegetation from Duck Dam, water hyacinth, was analysed to manage proposed clearing activities.	WC_BIOTA1
Total Primary Samples				**24**

Table notes:
1.Green text indicates samples analysed for trace PFAS analysis to LOR 0.002 µg/L.
2. WC-03_TRUCK and WC-03_TANK samples were not analysed.

3.3 Decision Framework

3.3.1 Trigger Values

The analytical results collected as part of the monitoring program have been used to assess whether the currently selected management actions should change. A decision framework has been developed in the OMP to define the conditions under which further assessment of the appropriateness of the current management measures is required (Senversa, 2021g). This decision framework includes trigger values:

- **Upper Trigger Values (UTVs)** are defined for use where risks are currently assessed to be low and acceptable. Where concentrations previously found to be associated with low and acceptable risks increase to be above the UTVs, review of the risk profile is required to assess if additional management is required.
- **Lower Trigger Values (LTVs)** are defined for use where exposures currently require management. Where concentrations previously found to be associated with potentially elevated risks decrease to be below the LTVs, review of the risk profile is required to assess if management measures can be reduced.

Where trigger values reference the ADWG Health-Based Guideline Values (HBGV), the 2020 NEMP[4] values have been retained for consistency across the initial OMP implementation period. The revised 2025 DWG have been considered separately, detailed in **Section 3.3.3.**

Table 3-5: Upper Trigger Values

Sampling Medium	Upper Trigger Value (µg/L)			Rationale
	PFOS	PFHxS	PFHxS+PFOS	
Mission Creek Catchment Water Used for Irrigation	4.2	2.5	-	The risk to consumers of irrigated produce associated with the previously measured range in concentrations at ID013 (1.4 - 2.8 µg/L PFOS; 1.4 - 1.5 µg/L Perfluorohexane sulfonate (PFHxS)) is assessed to be low and acceptable. Given the conservatism in the assessment, small variations above the previously measured range are considered unlikely to alter the risk profile. Trigger values approximately 50% above the upper end of the assessed range are adopted as indicative of a requirement to assess whether the potential risks have increased, and if further management is required. The triggers can be applied at property ID016, where water is used for irrigation.
Surface Water from Other Creeks	0.5	1.3	-	Outside of Mission Creek, surface water concentrations of up to 0.29 µg/L PFOS and 0.85 µg/L PFHxS have previously been measured. The HHERA assessed risks to consumers of produce irrigated with this water and risks to consumers of livestock products where this water is used for stock watering, as low and acceptable. Given the conservatism in the assessment, small variations above the currently measured range are considered unlikely to alter the risk profile. Trigger values approximately 50% above the upper end of the assessed range are adopted as indicative of a requirement to assess whether the potential risks have increased, and if further management is required. It is noted that the adopted trigger values are more stringent than the majority of the conservative screening levels for stock water and irrigation pathways, and within 50% of the most stringent values. Given the conservatism in the HHERA screening levels, it is assessed that provided concentrations remain below the triggers, risks will remain low and acceptable, regardless of water usage for irrigation or stock watering.
Surface Water from Cascade	-	-	0.07	PFAS concentrations previously measured in Cascade Creek and Headstone Creek were below the HBGV for drinking water, and no

[4] Heads of Environment Protection Authority (HEPA) (2020), *PFAS National Environmental Management Plan 2.0.*

Sampling Medium	Upper Trigger Value (µg/L)			Rationale
	PFOS	PFHxS	PFHxS+PFOS	
Creek / Headstone Creek				management measures are currently in place for this water. The drinking water HBGV is selected as the UTV. If concentrations increase above this level, further assessment of the requirement for management of water use is required.

Table 3-6: Lower Trigger Levels

Sampling Medium	Lower Trigger Value (µg/L)			Rationale
	PFOS	PFHxS	PFHxS+PFOS	
Domestic water use: **Reticulated water supplies at public facilities** **Surface water from Mission Creek** **Surface water from Watermill Creek** **Groundwater at Airport (Airport Bore)**	-	-	0.07	The drinking water HBGV (2020) has been selected as the LTV. Where concentrations are below this level, ongoing management of water use (including for sensitive use as drinking/domestic water) is unlikely to be required. Where water is used for drinking water, the revised HBGV (2025) should be applied.
Mission Creek water used for cattle stock watering prior to management	0.33	1.2	-	The conservative beef cattle stock watering screening levels adopted in the HHERA are adopted as the LTV; if concentrations remain consistently below these values, ongoing management is unlikely to be required.
Mission Creek water used for chicken stock watering prior to management	0.9	1.3	-	The conservative chicken stock watering screening levels adopted in the HHERA are adopted as the LTV; if concentrations remain consistently below these values, ongoing management is unlikely to be required.

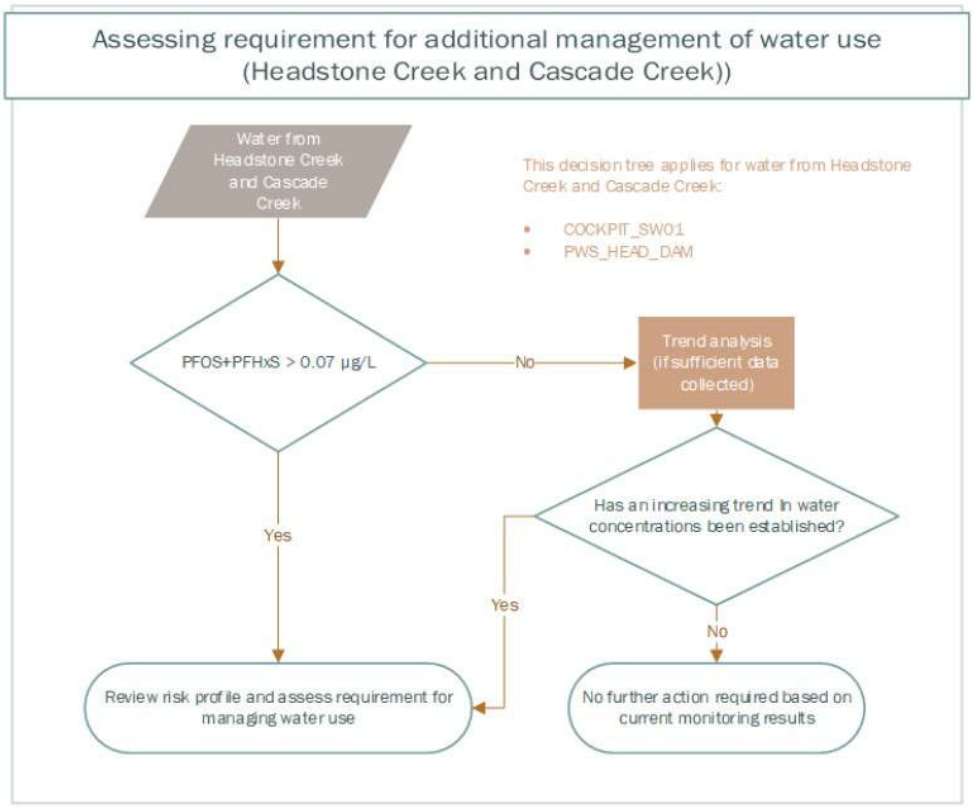
3.3.2 Decision Trees

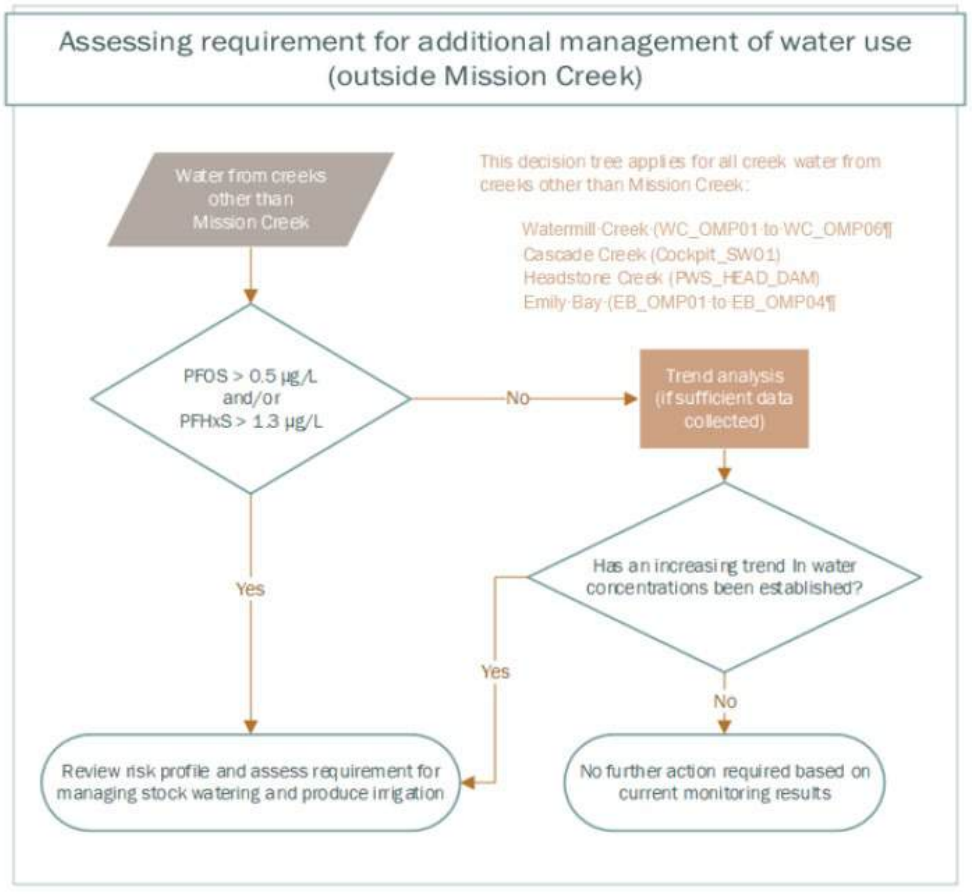
The flowcharts (“decision trees”) presented on the following pages detail the decision framework process for the different samples collected in the PFAS OMP.

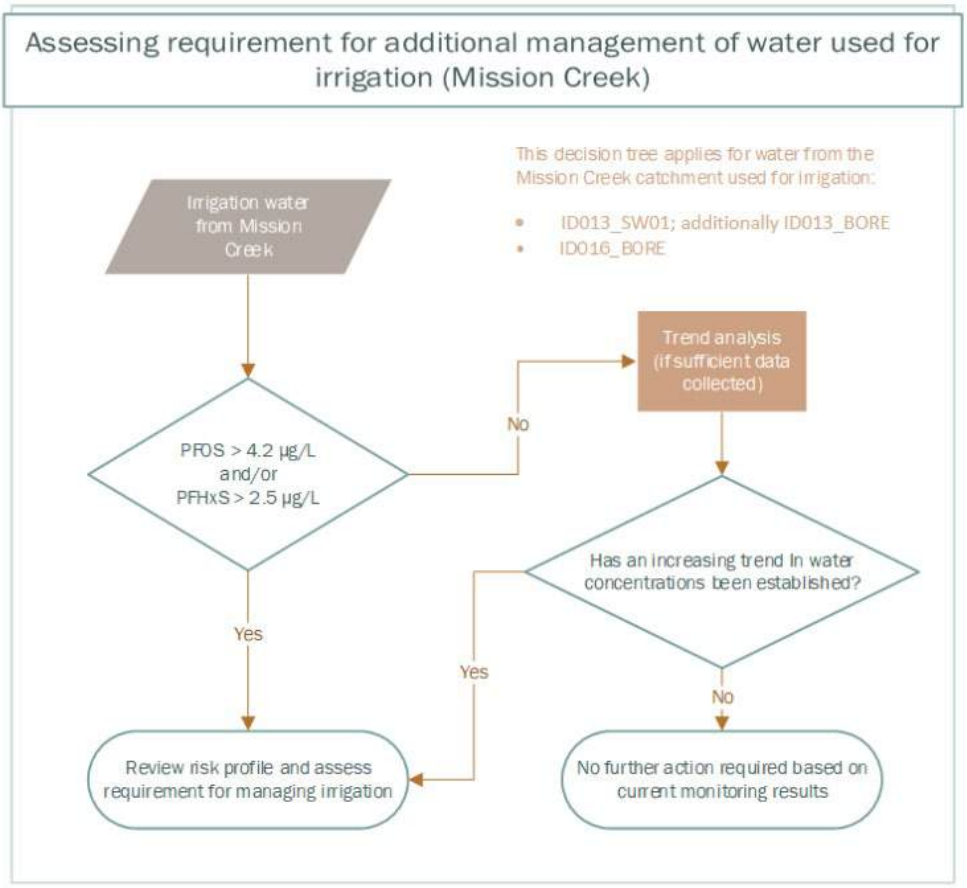
Separate decision trees have been presented for each water use and actions to take in the case that either:

- **The UTVs are exceeded,** requiring an assessment of the requirement for additional management of risks currently assessed to be low and acceptable; or
- **The LTVs are not met,** requiring an assessment of whether current management is still required.

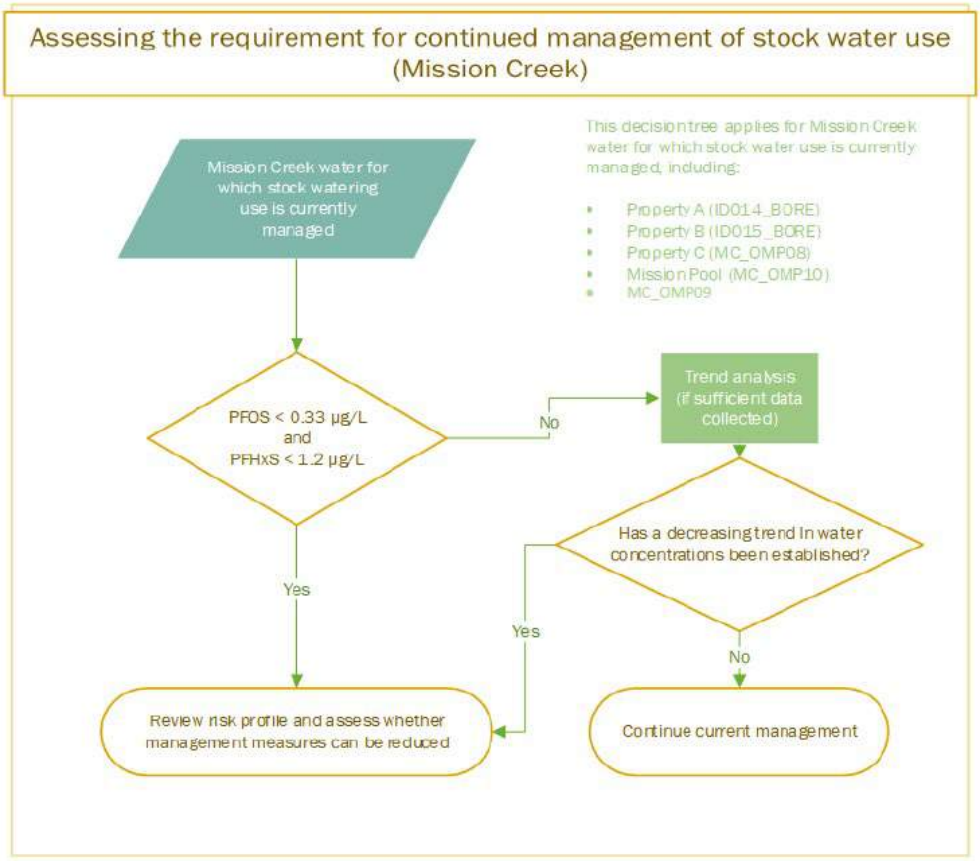
3.3.2.1 `Decision Trees: Use of UTVs for Exposures Currently Assessed to be Low and Acceptable

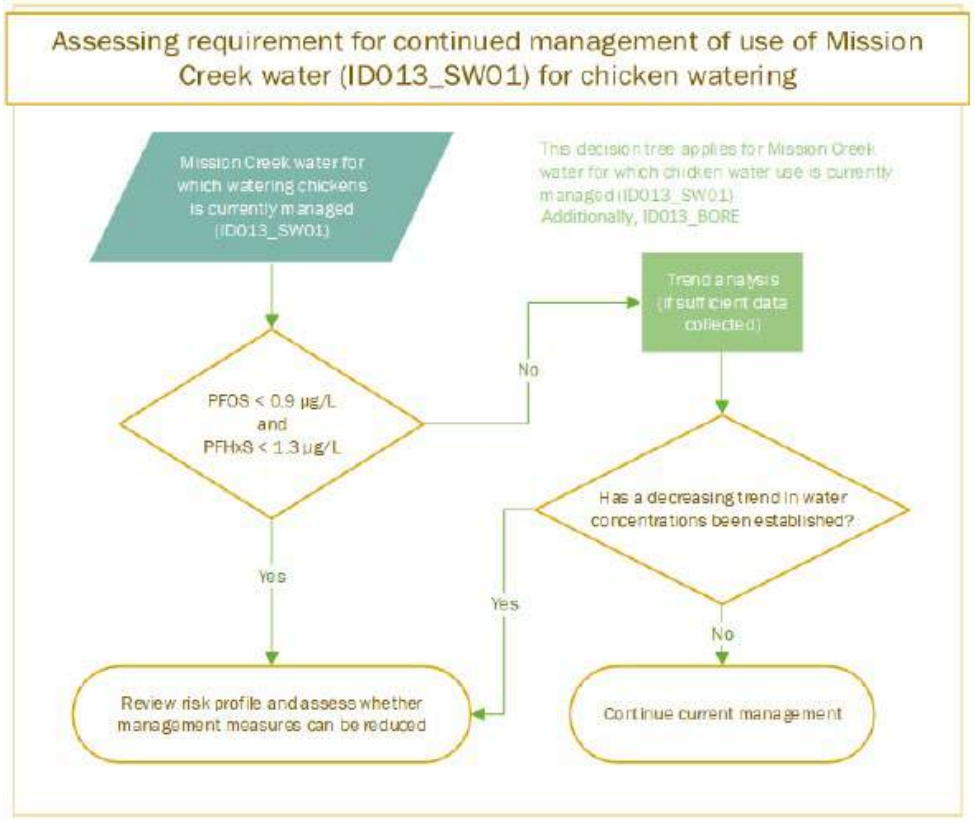


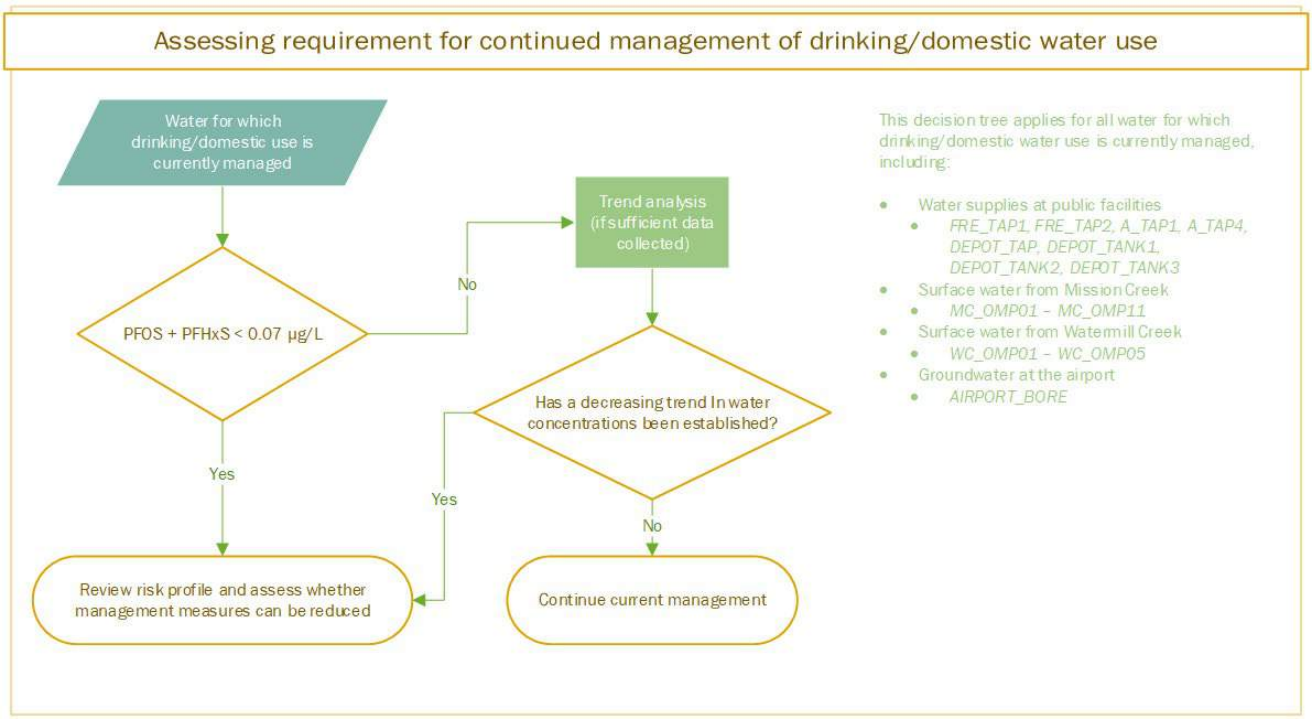



Assessing requirement for additional management of water used for irrigation (Mission Creek)
This decision tree applies for water from the Mission Creek catchment used for irrigation:
ID013_SW01; additionally ID013_BORE
ID016_BORE
Irrigation water from Mission Creek
PFOS > 4.2 µg/L and/or PFHxS > 2.5 µg/L
No
Trend analysis (if sufficient data collected)
Has an increasing trend in water concentrations been established?
Yes
Yes
No
Review risk profile and assess requirement for managing irrigation
No further action required based on current monitoring results

3.3.2.2 Decision Trees: Use of LTVs for Exposures Which Currently Require Management







3.3.3 Additional Screening Criteria

In addition to comparing to the UTVs/LTVs, results have also been compared to a range of screening levels to provide clarity around the potential risks associated with the range of potential exposure pathways. These screening levels have been adopted with reference to those adopted in the DSI, but (where necessary) updated to align with the latest version of the guidance, sourced from the PFAS NEMP 3.0 (HEPA, 2025), and NHMRC[5] 2025 Australian Drinking Water Guidelines (ADWG) (as relevant), and to include project-specific screening levels where derived as part of the HHERA. These criteria are summarised in **Table 3-8**. Further information on the adopted criteria is provided in the DSI (Senversa, 2021b). The revised DWG are summarised in **Table 3-7** below. This update responds to recent PFAS toxicity studies, and the recommended values are more stringent, and more closely aligned with drinking water values in other jurisdictions.

Table 3-7: Drinking water guidelines

PFAS	DWG (µg/L)	
	Current	Previous
PFOS	0.008	0.07 (sum PFOS+PFHxS)
PFHxS	0.03	
PFOA	0.2	0.56
PFBS	1	-

PFOA- Perfluorooctanoic acid
PFBS- Perfluorobutanesulfonic acid

[5] National Health and Medical Research Council

The DWG have changed as a result of updating the toxicity data (i.e. the "acceptable intake" of PFAS, which is the daily PFAS intake which is not expected to result in health effects). This updated toxicity data is potentially relevant to all PFAS exposures (e.g. food consumption, recreational water exposure and soil contact), not only to a pathway of exposure to PFAS via drinking water. However, the scope of the DWG derivation is for drinking water only; other regulatory agencies are responsible for regulation of pathways other than drinking water (e.g. Food Standards Australia and New Zealand [FSANZ] is the regulatory agency responsible for food). Agencies other than ADWG will need to review and accept the updated toxicity data before guideline values for pathways other than drinking water are updated. **The guideline values for PFAS exposures other than through drinking water have not yet been updated** to incorporate the revised toxicity data; as such the previous guideline values are currently applicable.[6]

Table 3-8: Additional Screening Criteria

Land/Water Use	Adopted Screening Criteria					Source
	PFOA[1]	PFOS	PFHxS	PFHxS+PFOS	PFBS	
SURFACE WATER AND GROUNDWATER						
Aquatic Ecosystems[4]	19 µg/L (99% protection) 220 µg/L (95% protection) 632 µg/L (90% protection)	0.00023 µg/L (99% protection) 0.13 µg/L (95% protection) 2 µg/L (90% protection)	-	-	-	HEPA (2025)
Primary and/or Secondary Contact Recreation	10 µg/L	2 µg/L[3]	2 µg/L[3]	2 µg/L	-	NHMRC (2019)[5]
Aesthetic Enjoyment	To be assessed based on observations of odour and/or visual amenity impact (noting that aesthetic impacts have not been noted for PFAS impacted water during site investigations).					-
Cultural And Spiritual Values (Indigenous and/or Non-Indigenous)	No specific guidelines available, considered that criteria for other land uses will also be protective of this use.					-
Drinking (Potable) Water	0.2 µg/L	0.008 µg/L	0.03 µg/L	-	1 µg/L[2]	NHMRC (2025).
Agriculture (Stock Watering)	-	0.33 µg/L	1.2 µg/L	-	-	Relevant screening levels for this land use are not available. HHERA (Senversa, 2021c) derived screening levels for cattle watering adopted. These levels are also protective of chicken watering.

[6] It is noted that in the Public Consultation draft of the updated Australian Recreational Water Quality Guidelines (NHMRC, 2026), the NHMRC toxicity data used in the DWG derivation is referenced in the derivation of recreational screening levels for PFAS; this provides an indication that the NHMRC toxicity data may also be applicable to recreational exposure pathways in the future (i.e. in the event this guidance is finalised unchanged).

Land/Water Use	Adopted Screening Criteria					Source
	PFOA[1]	PFOS	PFHxS	PFHxS+PFOS	PFBS	
Irrigation	-	1.4 µg/L	0.8 µg/L	-	-	Relevant screening levels for this land use are not available. HHERA (Senversa, 2021c) derived screening levels for vegetable irrigation adopted, which are more stringent than fruit irrigation screening levels.
Aquaculture Human Consumption of Fish, Crustacea and Molluscs	As the Creeks on Norfolk Island are largely ephemeral with water flowing only during rainfall events, this land use is not considered relevant to this investigation. Furthermore, there was no evidence of human consumption of freshwater Fish, Crustacea, and Molluscs from water bodies or within the Mission Creek Catchment.					-
Industrial and Commercial Use	No generic screening criteria for these uses are available, however, criteria for other land uses relevant to human and animal health (including potable water supply, primary contact recreation and stock watering) are considered relevant and will be considered in assessing impacts to this land use.					-
SOIL AND SEDIMENT						
Human Health • Sensitive Use (including growing of home produce) • Recreation / Open Space Use	0.06 mg/kg (sensitive) 10 mg/kg (recreation / open space)	Refer to PFHxS+PFOS[3]	Refer to PFHxS+PFOS[3]	0.003 mg/kg (sensitive) 1 mg/kg (recreation / open space)	-	HEPA (2025)
Human Health Commercial Use **Industrial Use**	50 mg/kg	Refer to PFHxS+PFOS [3]	Refer to PFHxS+PFOS[3]	20 mg/kg	-	
Maintenance of Ecosystems	0.003 mg/kg (secondary poisoning / bioaccumulation) 10 mg/kg (direct toxicity)	0.003 mg/kg (secondary poisoning / bioaccumulation) 1 mg/kg (direct toxicity)	-	-	-	
Production of Food, Fibre and Flora	0.06 mg/kg	Refer to PFHxS+PFOS[3]	Refer to PFHxS+PFOS[3]	0.003 mg/kg	-	HEPA (2025) HIL-A sensitive use criteria adopted in absence of agricultural guidelines
Aesthetics	PFAS are not considered to be relevant indicators for this land use, and it has not been considered further in the DSI.					-

Land/Water Use	Adopted Screening Criteria					Source
	PFOA[1]	PFOS	PFHxS	PFHxS+PFOS	PFBS	
Buildings and Structures	PFAS are not considered to be relevant indicators for this land use, and it has not been considered further in the DSI. However, PFAS is reported to adsorb and desorb from permeable materials such as concrete, potentially representing source of PFAS that should be considered in the conduct of the works.					-
BIOTA						
Food for Human Consumption - Fruits	0.0051 mg/kg	0.001 mg/kg (0.0006 mg/kg, however LOR 0.001 mg/kg)	-	0.001 mg/kg (0.0006 mg/kg, however LOR 0.001 mg/kg)	-	FSANZ (2017) Trigger Points, which are conservative screening levels and not regulatory limits.
Food for Human Consumption - Vegetables	0.0088 mg/kg	0.0011 mg/kg	-	0.0011 mg/kg	-	FSANZ (2017) Trigger Points, which are conservative screening levels and not regulatory limits.

Table Notes:

1. PFOA- perfluorooctanoic acid.
2. PFBS has been included as a criterion is now available, however it is not considered a CoPC at this site.
3. Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).
4. For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
   • assessing toxicity and bioaccumulation in high conservation value ecosystems
   • assessing bioaccumulation in slightly to moderately disturbed ecosystems.
   Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
5. It is noted that in the Public Consultation draft of the updated Australian Recreational Water Quality Guidelines (NHMRC, 2026), the NHMRC toxicity data used in the DWG derivation is referenced in the derivation of recreational screening levels for PFAS; this provides an indication that the NHMRC toxicity data may also be applicable to recreational exposure pathways in the future (i.e. in the event this guidance is finalised unchanged).

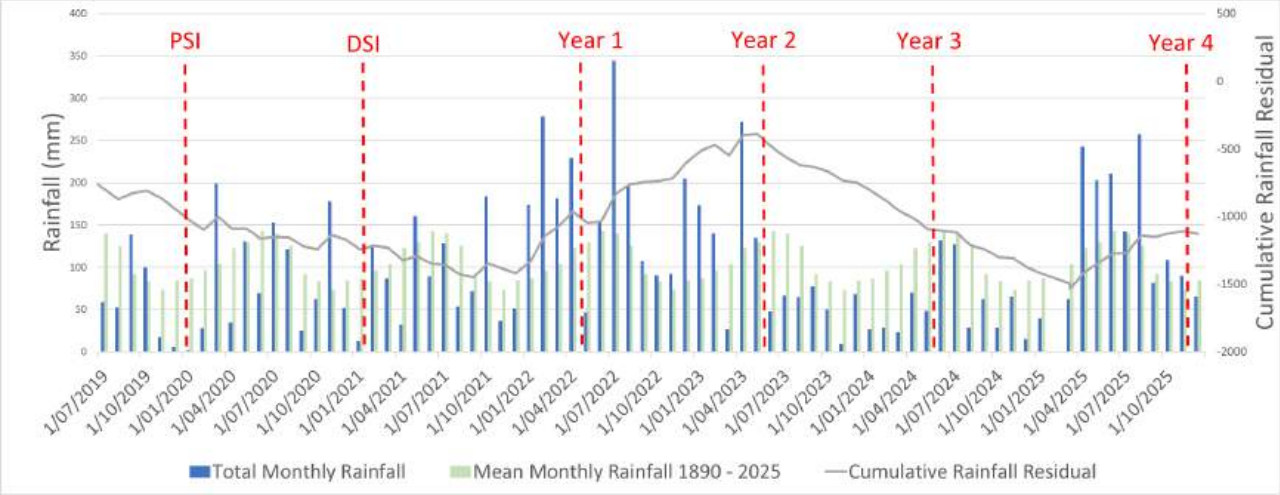
4.0 Results

4.1 Surface and Groundwater Results

4.1.1 Rainfall

Rainfall conditions and the presence of surface water varied significantly between the PSI sampling in January 2020 and the OMP monitoring period. **Figure 4-1** below displays the total monthly rainfall between 2019 and 2025 and rainfall residual. Above average rainfall was recorded prior to the Year 1, Year 2 and Year 4 monitoring events; below average rainfall was recorded prior to the PSI, DSI and Year 3 monitoring events.

Figure 4-1: Total Monthly Rainfall



Rainfall can be expected to have competing impacts on observed PFAS concentrations, including:

- PFAS concentration increase where high rainfall infiltrates PFAS in soil source areas and allows increased migration of PFAS to surface water and groundwater.
- PFAS concentration increase where low rainfall results in evaporation of stagnant water bodies, concentrating PFAS in residual water.
- PFAS concentration decrease where high rainfall dilutes PFAS concentrations in surface water and groundwater.

Upper and lower Mission Creek PFHxS+PFOS concentrations are graphed with total rainfall recorded in the preceding month below. There appears to be a very weak positive correlation (R^2 0.011 to 0.14) between increased rainfall and increased PFHxS+PFOS concentration in the majority of locations. A week to moderate negative correlation (R^2 0.27 to 0.33) is apparent closest to source areas at WWII_DAM and the Airport Bore. Overall, rainfall is not assessed to have a significant impact on PFAS concentrations monitored.

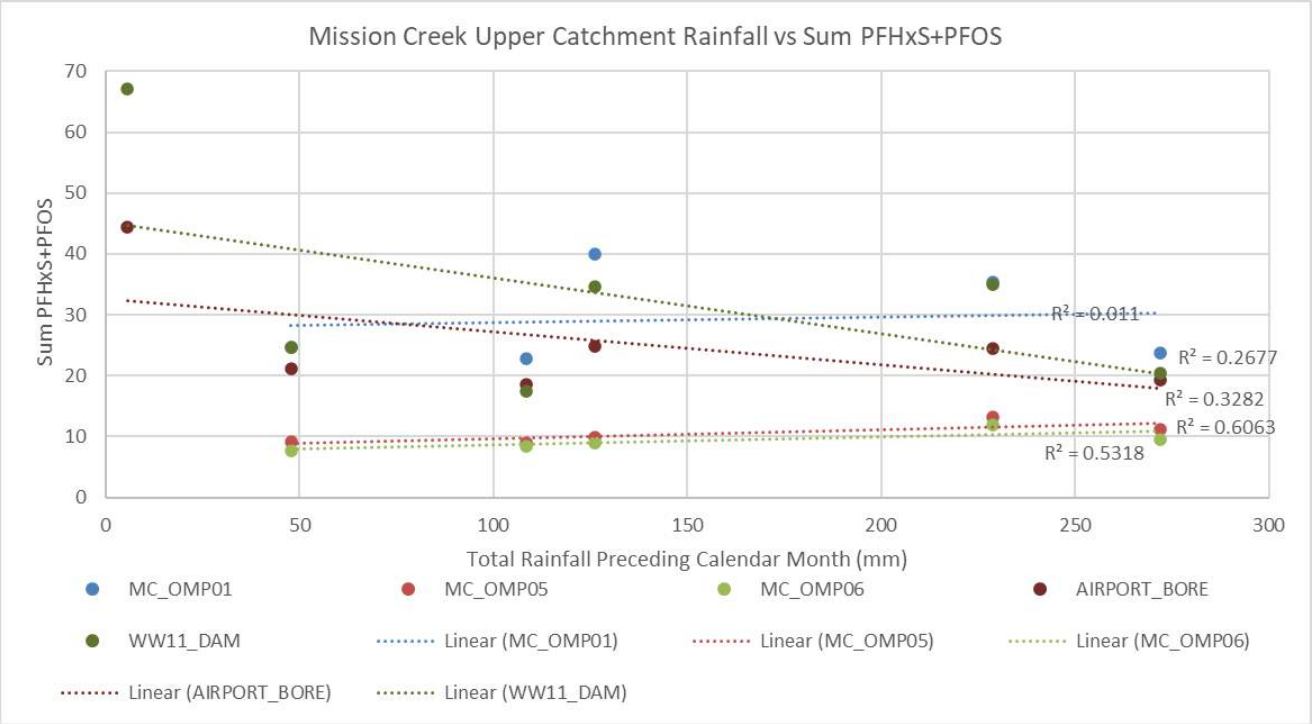


Figure 3: Rainfall Vs PFAS Concentration Upper Mission Creek

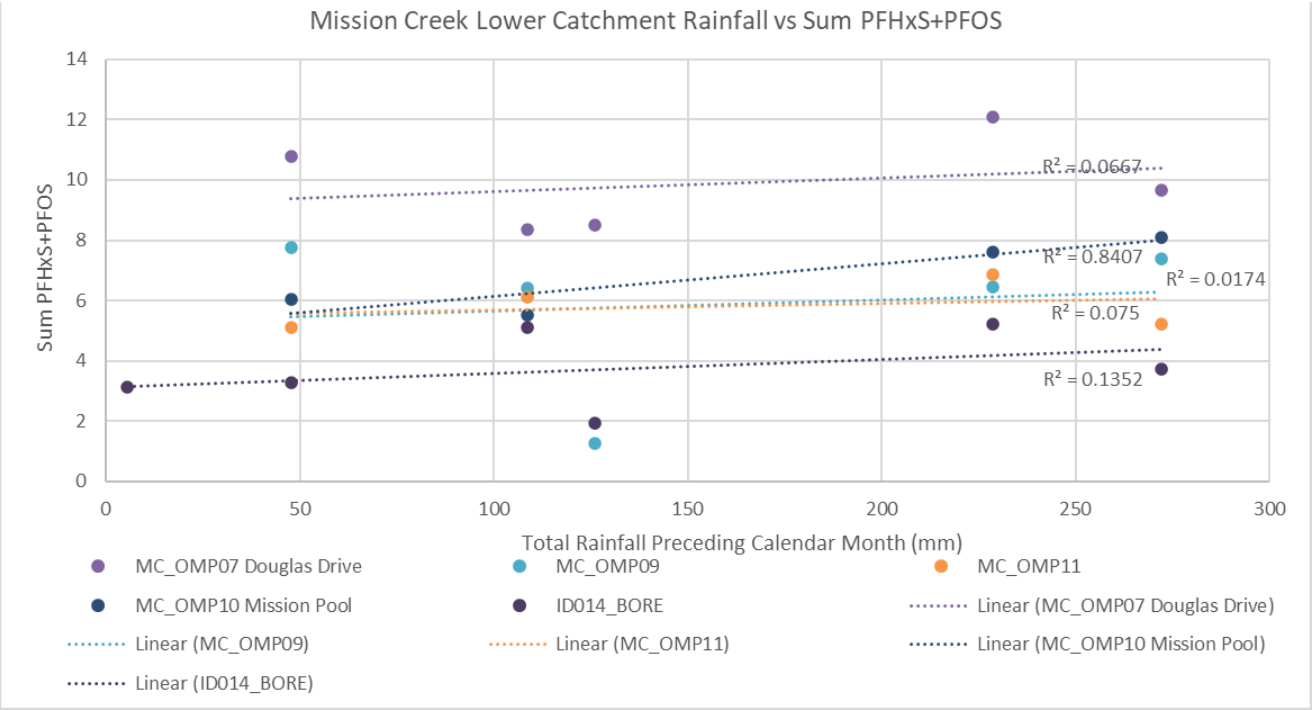


Figure 4: Rainfall Vs PFAS Concentration Lower Mission Creek

4.1.2 Surface Water and Groundwater Field Observations

Water was present at all sampling locations during the monitoring event. Surface water and groundwater field observations are presented in **Appendix C** and summarised in **Table 4-1** below. It is noted that a number of samples were opportunistically collected and field observations recorded in **Appendix C**, however laboratory analysis was not completed for all of these samples. This data has been included in **Appendix C** for completeness.

Table 4-1: Summary of Water Field Observations

Sample location		Mission Creek[1]	Watermill Creek[2]	Headstone Creek[3]	Cascade Creek[4]	Ground-Water[5]	Public Taps and Tanks[6]
Dissolved Oxygen (DO) [mg/L]	Min	0.2	0.4	-	-	3.2	4.5
	Max	7.2	8.3	-	-	7.7	7.8
	Median	**5.3**	**3.9**	**0.7**	**7.0**	**5.5**	**6.1**
Electrical Conductivity (EC) [micro siemens per centimetre [µS/cm]]	Min	348	253	-	-	208	17
	Max	661	508	-	-	819	735
	Median	**414**	**358**	**457**	**357**	**491**	**32**
pH	Min	5.9	5.9	-	-	4.7	5.2
	Max	7.0	6.7	-	-	6.5	7.3
	Median	**6.5**	**6.4**	**6.4**	**6.5**	**5.6**	**6.2**
Redox Potential [millivolts [mV]]	Min	-465	-373	-	-	-292	-366
	Max	-129	-228	-	-	-69	31
	Median	**-171**	**-279**	**-260**	**-264**	**-205**	**-253**
Temperature [°C]	Min	19	19	-	-	21	13
	Max	26	23	-	-	23	29
	Median	**21**	**20**	**22**	**21**	**21**	**23**

Table notes:
1. Mission Creek: MC_OMP01 to 07, MC_OMP09 to 11, WW11_DAM and ID014_BORE.
2. Watermill Creek: WC_OMP01 to 5.
3. Headstone Creek: PWS_HEAD_DAM.
4. Cascade Creek: Cockpit_SW01.
5. Groundwater: AIRPORT_BORE, ID013_BORE, ID016_BORE,ID019_BORE, WC-03_BORE and WC-04.
6. Public taps and tanks excluding those supplied by the Airport Bore: FRE_TAP2, public toilets, A_TAP4.

Recorded surface water field parameters were generally consistent with the previous monitoring event in 2024. Surface water generally displayed aerobic conditions and an EC within the expected range for fresh water. The pH was neutral to slightly acidic. The redox potential was more reducing than previously recorded, generally moderately reducing.

The fire station kitchen tap recorded an elevated EC of 735 us/cm, consistent with the change in supply to desalinated water.

Groundwater parameters were generally consistent with the previous monitoring event in 2024. Groundwater generally displayed aerobic conditions and low salinity (EC between 208 and 819 µS/cm). The pH was slightly acidic (4.7 to 6.5) and moderately reducing conditions were recorded.

4.1.3 Surface Water and Groundwater Laboratory Results

Surface water and groundwater analytical results have been compared against the adopted upper and lower trigger values to assess whether the currently selected management actions should change. Results are presented in appended **Tables 1** to **6** and summarised in **Table 4-2** and **Table 4-3** below. Water concentrations are mapped on appended **Figures 3** and **4.**

Table 4-2: Water UTV Results

Sampling Medium	Upper Trigger Value (µg/L)			No. Samples	No. Detections	No. Above UTV
	PFOS	PFHxS	PFHxS+PFOS			
Mission Creek Catchment Groundwater Used for Irrigation: ID013_BORE, ID016_BORE	4.2	2.5	-	2	PFOS: 0 PFHxS: 1 PFHxS+PFOS: 1	0
Surface Water from Other Creeks: WC_OMP01 to 05	0.5	1.3	-	5	PFOS: 5 PFHxS: 5 PFHxS+PFOS: 5	0
Surface Water from Cascade Creek / Headstone Creek: Cockpit_SW01, PWS_HEAD_DAM	-	-	0.07	2	PFOS: 1 PFHxS: 1 PFHxS+PFOS: 1	0

Table 4-3: Water LTV Results

Sampling Medium	Lower Trigger Value (µg/L)			No. Samples	No. Detections	No. Below LTV
	PFOS	PFHxS	PFHxS+PFOS			
Reticulated Water Supplies at Public Facilities: A_TAP1, A_TAP4, A_TAP5, A_TAP15, FRE_TAP1, FRE_TAP2, FRE_TAP6, DEPOT_TAP, DEPOT_TANK1 and 2, COUNCIL_TAP1, hospital taps, WASTE_TAP, ELEC_TAP, water carting water **Surface Water from Mission Creek:** MC_OMP01 to 07a and MC_OMP09 to 11, WW11_DAM **Surface Water from Watermill Creek:** WC_OMP01 to 05 **Groundwater at Airport:** AIRPORT_BORE	-	-	0.07	37	PFHxS+PFOS: 21	**20**

Sampling Medium	Lower Trigger Value (µg/L)			No. Samples	No. Detections	No. Below LTV
	PFOS	PFHxS	PFHxS+PFOS			
Mission Creek Water Used for Cattle Stock Watering Prior to Management: ID014_BORE, ID019_BORE, MC_OMP09 and 10.	0.33	1.2	-	4	PFOS: 4 PFHxS: 4	**1**
Mission Creek Water Used for Chicken Stock Watering Prior to Management: ID013_BORE	0.9	1.3	-	1	PFOS: 0 PFHxS: 0	**1**

Laboratory results have also been compared against the additional screening criteria, presented in **Table 7** (Year 4 and historical data). Laboratory certificates of analysis are provided in **Appendix D.** A summary of detections and exceedances of the drinking water and recreational water use criteria is provided below.

Table 4-4: Water Additional Screening Criteria Results

Sample location		Assessment Criteria (µg/L)	Number of locations **Detected** / Number of locations Exceeding Criteria					
			Mission Creek[1] n=12	**Watermill Creek[2]** n=5	**Headstone Creek[3]** n=1	**Cascade Creek[4]** n=1	**Ground-Water[5]** n=6	**Public Taps and Tanks[6]** n=16
Drinking Water – Health	**PFOA**	0.2	**12/6**	**1/0**	0/0	0/0	**1/1**	0/0
	PFOS	0.008	**12/12**	**5/5**	0/0	**1/1**	**3/2**	0/0
	PFHxS	0.03	**12/12**	**5/5**	0/0	**1/0**	**4/3**	0/0
	PFBS	1	**12/0**	**2/0**	0/0	0/0	**3/0**	0/0
Recreational Water - Health	**PFOA**	10	**12/0**	**1/0**	0/0	0/0	**1/1**	0/0
	PFHxS+PFOS	2	**12/10**	**5/0**	0/0	1/0	**4/1**	0/0

Table notes:
n: number of samples analysed.
1. Mission Creek: (12 samples) MC_OMP01 to 07, MC_OMP09 to 11, WW11_DAM and ID014_BORE.
2. Watermill Creek: (5 samples) WC_OMP01 to 5.
3. Headstone Creek: (1 sample) PWS_HEAD_DAM. The LOR analysed at this location was above the DWG for PFOS.
4. Cascade Creek: (1 sample) Cockpit_SW01.
5. Groundwater: (6 samples) AIRPORT_BORE, ID013_BORE, ID016_BORE, ID019_BORE, WC-03_BORE and WC-04.
6. Public taps and tanks excluding those supplied by the Airport Bore FRE_TAP2, public toilets, A_TAP4 (16 samples).

4.2 Soil and sediment Results

Soil and sediment laboratory results have been compared against the additional screening criteria, presented in **Table 8.** Laboratory certificates of analysis are provided in **Appendix D.** Discussion on the findings is presented in **Section 5.0.**

4.3 Biota Results

Biota laboratory results have been compared against the additional screening criteria, presented in **Table 9.** Laboratory certificates of analysis are provided in **Appendix D.** Discussion on the findings is presented in **Section 5.0.**

4.4 Quality Assurance and Quality Control

The data quality assurance and quality control (QAQC) procedures adopted by Senversa provide a consistent approach to evaluation of whether the data quality objectives required by the project have been achieved. The process focuses on assessment of the useability of the data in terms of accuracy and reliability in forming conclusions on the condition of the element of the environment being investigated.

The methodology and results of the QAQC assessment are presented in **Appendix B.**

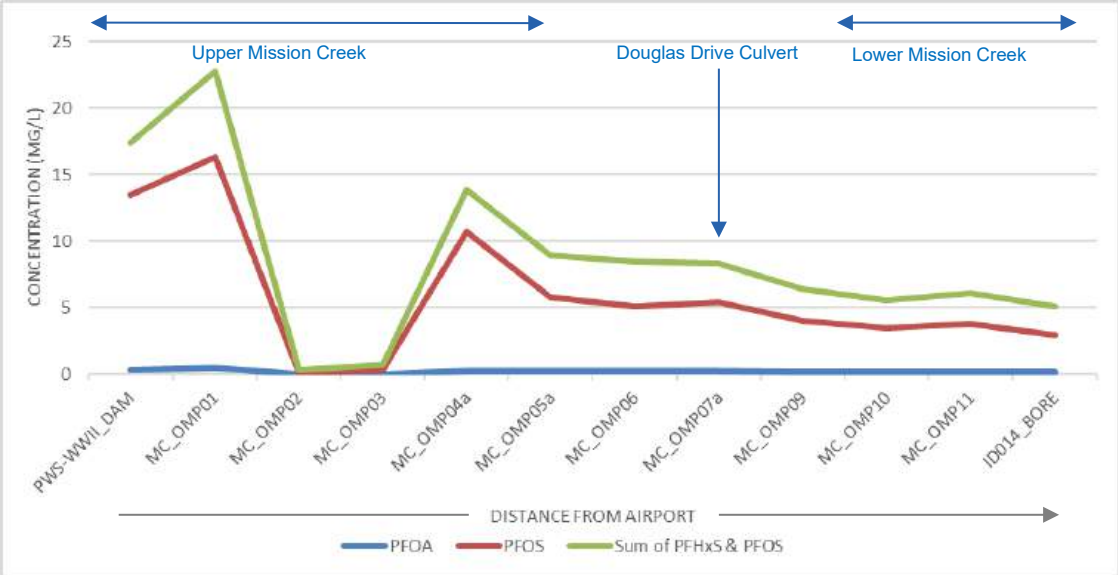
While a small number of results were outside specified acceptance criteria, these were not considered to significantly impact the quality or representativeness of the data, and the majority of results indicated that the precision and accuracy of the data was within acceptable limits. The results are therefore considered to be representative of chemical concentrations in the environmental media sampled at the time of sampling, and suitable to be used for their intended purpose in forming conclusions relating to the contamination status of water, soil, sediment and biota.

5.0 Findings

5.1 Nature and Extent of PFAS in Creek Water

5.1.1 Mission Creek

PFAS were detected in all Mission Creek samples analysed, consistent with historical results. Surface water samples from the Mission Creek catchment showed the highest concentrations at locations closest to source zones at the Airport (WWII Dam and MC_OMP01) and generally decreased with distance from the Airport, consistent with historical results. MC_OMP02 and MC_OMP03 were the exception, which reported low levels of PFAS due to river confluence with less contaminated streams, as noted in previous monitoring events. PFOA, PFOS and PFHxS+PFOS concentrations along



Mission Creek with distance from the Airport are shown on **Figure 5-1** below.

Figure 5-1: Surface Water PFAS Concentrations in Mission Creek

5.1.1.1 Mission Creek Temporal Trends

Mission Creek PFHxS+PFOS concentrations from 2020 to 2025 are plotted on **Figure 5-2** and **Figure 5-3** below.

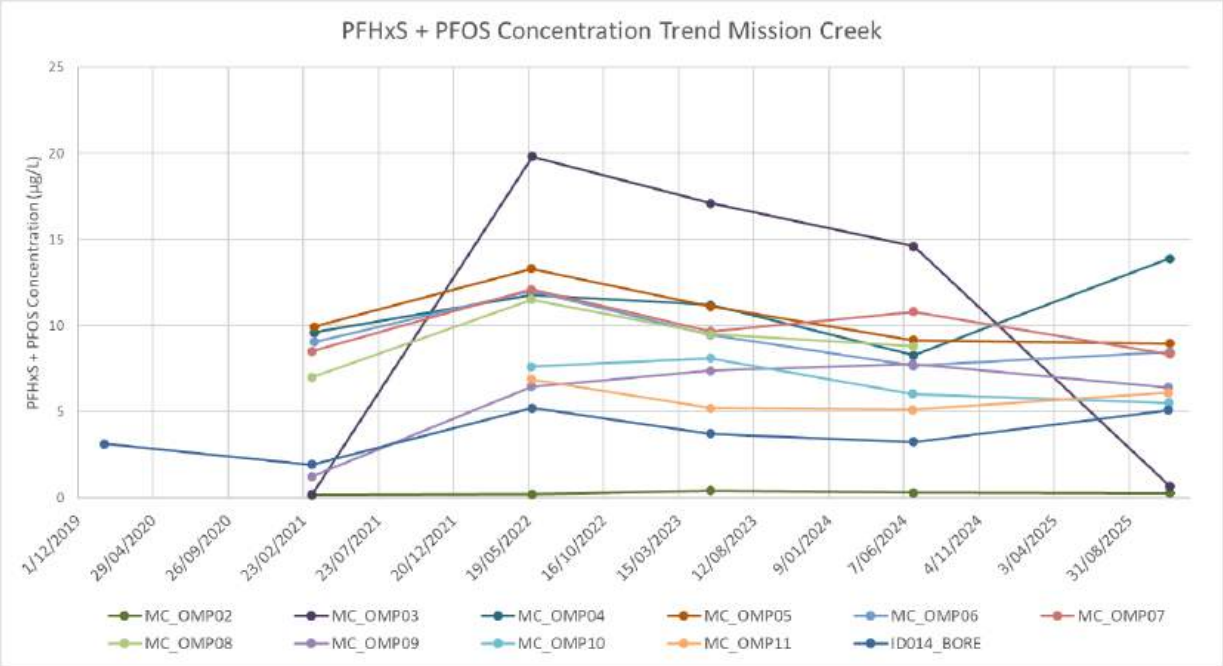


Figure 5-2: Mission Creek PFHxS+PFOS Concentration Trends

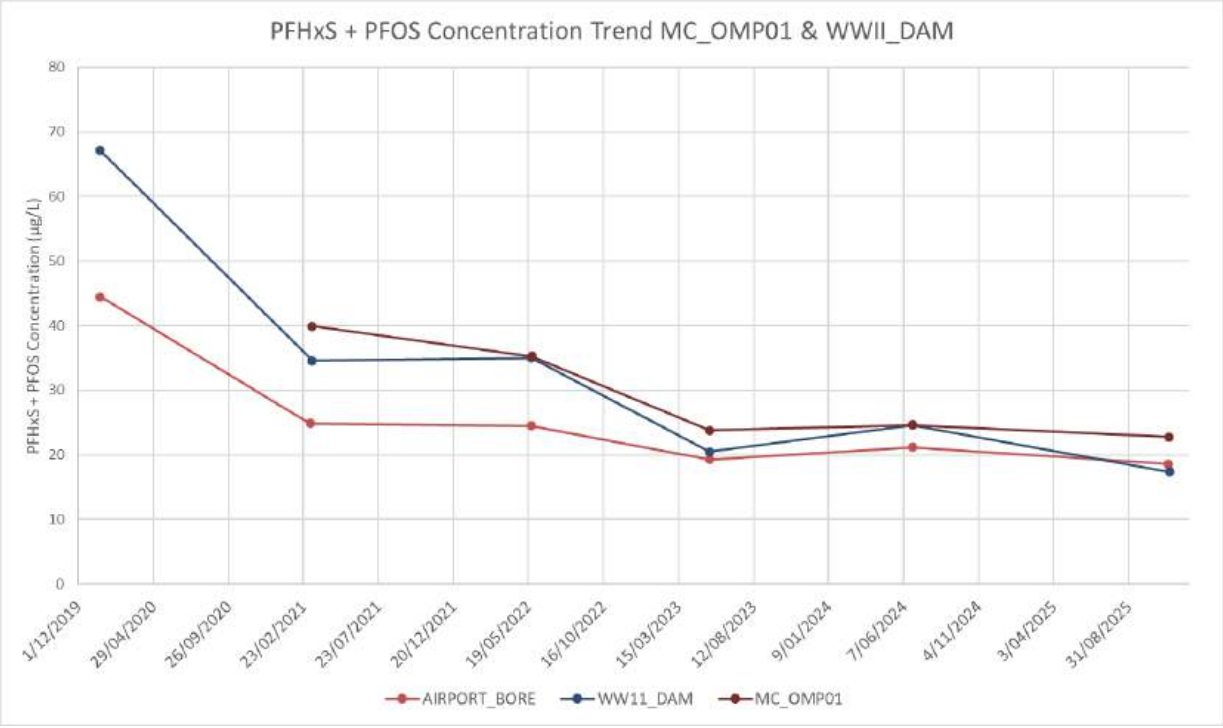


Figure 5-3: MC_OMP01 & WWII_DAM PFHxS+PFOS Concentration Trends

The decrease in PFAS concentrations at MC_OMP03 relative to 2024 is considered to be due to the high rainfall prior to the monitoring event. This causes connection of the braided river streams in this section of the creek from the less contaminated stream behind the waste management centre and the more contaminated stream originating at the WWII_DAM sample location.

A Mann Kendall trend analysis was undertaken on the data collected to-date to assess statistically significant changes in concentrations over time, presented in **Appendix E.** In general, the Mission Creek data showed no significant upwards or downwards trends in PFOS, PFOA or PFHxS+PFOS concentrations between 2020 and 2025. However, a statistically significant downwards trend was noted for these three analytes at the WWII Dam and Airport Bore, as well as PFOA at MC_OMP07 and PFHxS+PFOS at MC_OMP01. Trends are generally more discernible at higher concentration ranges due to a reduction in measurement uncertainty and the broader numerical range. The observed downwards trends in the upper portion of Mission Creek where the highest PFAS concentrations have been reported are consistent with this pattern.

The primary AFFF product historically in use at the airport from 1980 to 2004 was reportedly 3M Lightwater™, followed by Ansulite® until 2015 (Senversa, 2021a). Both compounds are known to contain several PFAS compounds, including PFOS and PFOA, however Ansulite® contains trace amounts (AirServices, 2007). Consistent with this reported historical use, in Australian sites where legacy AFFF has been utilised (including on Norfolk Island Airport), PFOS and PFHxS are predominantly the most widespread PFAS detected. The observed reduction in PFOS, Sum PFHxS+PFOS and PFOA concentrations is therefore consistent with cessation of AFFF use on-site and contaminant mass reduction in the source areas as rainfall flushes through the system over time.

5.1.1.2 Mission Creek Assessment Against Screening Criteria

The Year 4 monitoring event PFAS concentrations in Mission Creek remained above the LTVs (indicating that current management measures around the use of water for drinking / domestic use and stock watering should continue). No UTV have been set as management measures are required.

No change to current management actions is required based on assessment of the Year 4 monitoring results against these trigger values, i.e. management measures and/or further assessment are required.

All Mission Creek samples analysed exceeded the drinking water assessment criteria. All but two samples also exceeded the recreational water use and vegetable irrigation assessment criteria. Current use of Mission Creek water for these purposes has not been identified.

5.1.2 Watermill Creek

Within the Watermill Creek catchment, the highest PFAS concentration in surface water (WC_OMP01, PFHxS+PFOS: 1.01 µg/L) was identified immediately downstream of the Airport maintenance depot, consistent with the previous monitoring event. This concentration remained above the adopted PFOS human health drinking water criterion of 0.008 µg/L, but below the criteria for recreational use (2 µg/L). PFAS concentrations decreased with distance from the Airport, as indicated on **Figure 5-4** below.

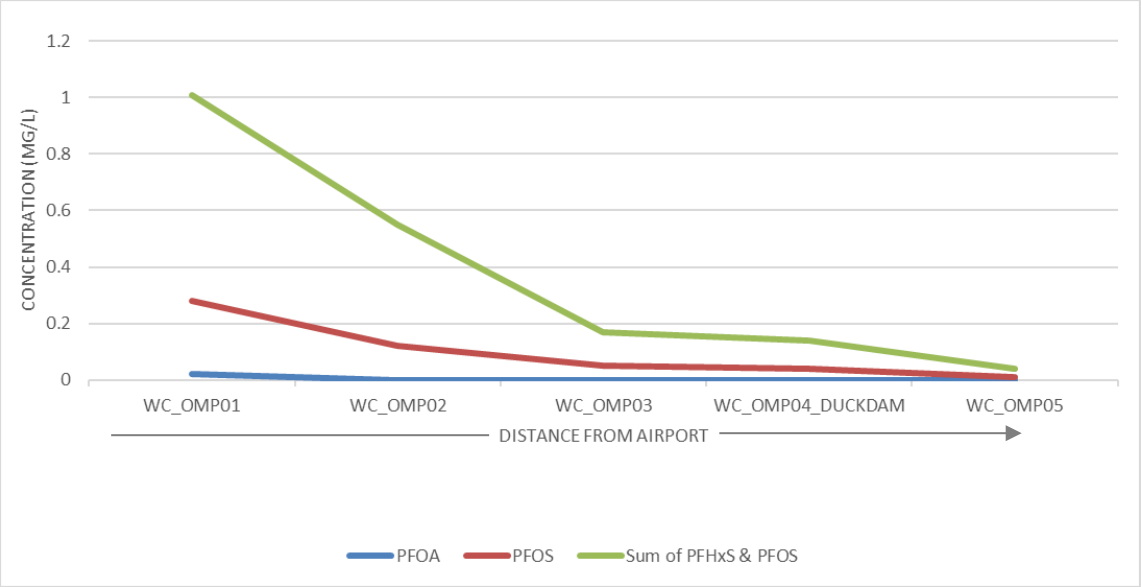


Figure 5-4: Surface Water PFAS Concentrations in Watermill Creek

5.1.2.1 Watermill Creek Temporal Trends

Watermill Creek PFHxS+PFOS concentrations from 2020 to 2025 are plotted on **Figure 5-5** below.

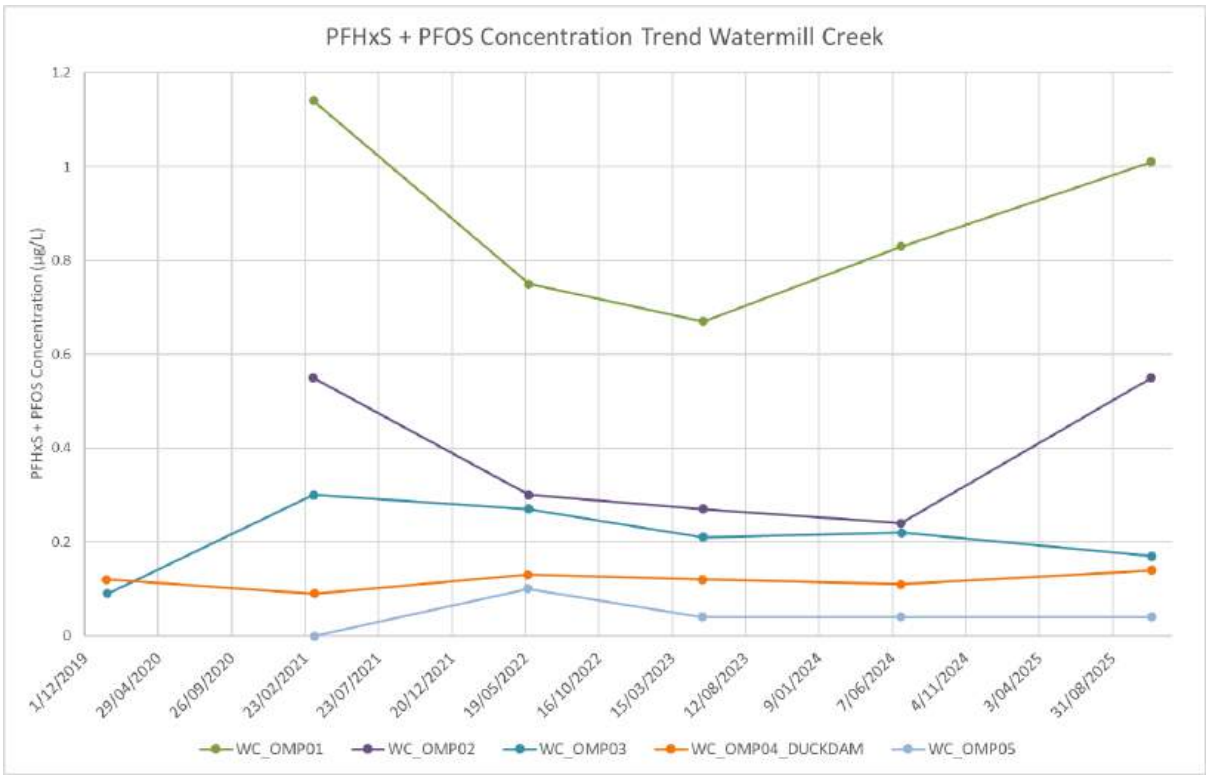


Figure 5-5: Watermill Creek PFHxS+PFOS Concentration Trends

A Mann Kendal trend analysis was undertaken on the data collected to-date to assess statistically significant changes in concentrations over time, presented in **Appendix E.** Reported PFAS concentrations in Watermill Creek displayed no statistically significant temporal trends. However, the time plot above indicates PFAS concentrations closest to the airport (WC_OMP01 and 2) increased between 2024 and 2025. The concentration of PFHxS+PFOS also marginally increased in Duck Dam and was the highest recorded to-date. Consultation with NIRC including the airport and fire station has not indicated a change in site management that may have resulted in an increased PFAS flux into Watermill Creek and it is noted that the 2025 reported PFAS concentrations remain within the same order of magnitude as historical results. Ongoing monitoring of Watermill Creek is recommended to monitor this trend.

5.1.2.2 Watermill Creek Assessment Against Screening Criteria

The Year 4 monitoring event PFAS concentrations in Watermill Creek remained below the UTVs (indicating that no additional management measures are required) and generally above the LTVs (indicating that current management measures around the use of water for drinking / domestic use should continue). Specifically, as concentrations remain below the UTVs, this indicates that the risks from other water uses (including stock watering and produce irrigation) remain low and acceptable.

No change to current management actions is required based on assessment of the Year 4 monitoring results against these trigger values.

All Watermill Creek samples analysed exceeded the drinking water assessment criteria, however, no samples exceeded the recreational water use, vegetable irrigation or stock watering assessment criteria.

5.1.3 Cascade Creek and Headstone Creek

Cockpit_SW01 reported a low-level concentration of PFOS (0.01 µg/L) and PFHxS+PFOS (0.02 µg/L). These concentrations were higher than the 2023 results, when PFAS was not detected, however are consistent with results reported in other years since 2020. The reported concentrations were above the PFOS 99% ecological protection guideline value (0.00023 µg/L) and DWG (0.008 µg/L) but remained below the recreational criterion (2 µg/L). It is noted that the creek waters are not utilised for drinking.

PWS_HEAD_DAM PFAS concentrations were reported below the LOR, sampled from the end of Headstone Creek. This is a reduction from low level PFOS previously reported in 2020 and is consistent with the 2022 to 2024 results.

The Year 4 monitoring event PFAS concentrations reported in both Cascade and Headstone Creeks were below the UTVs and no implementation of management actions is required based on assessment against these trigger values.

5.2 Nature and Extent of PFAS in Groundwater

5.2.1 Groundwater Temporal Trends

The reported concentration of PFHxS+PFOS in groundwater collected from both the Airport Bore and ID_016 bore located in the Mission Creek catchment decreased in 2025 relative to 2024. PFAS was reported below the laboratory LOR in ID013 bore consistent with previous years. No access was provided to ID015 bore, however ID019 bore was sampled for the first time in the lower Mission Creek Catchment. PFOS and PFHxS were detected in ID019_BORE above the DWG, but below the recreational water use criteria, broadly consistent with concentrations previously reported in ID015 bore. An overall decreasing trend is indicated at the Airport Bore in **Figure 5-6**.

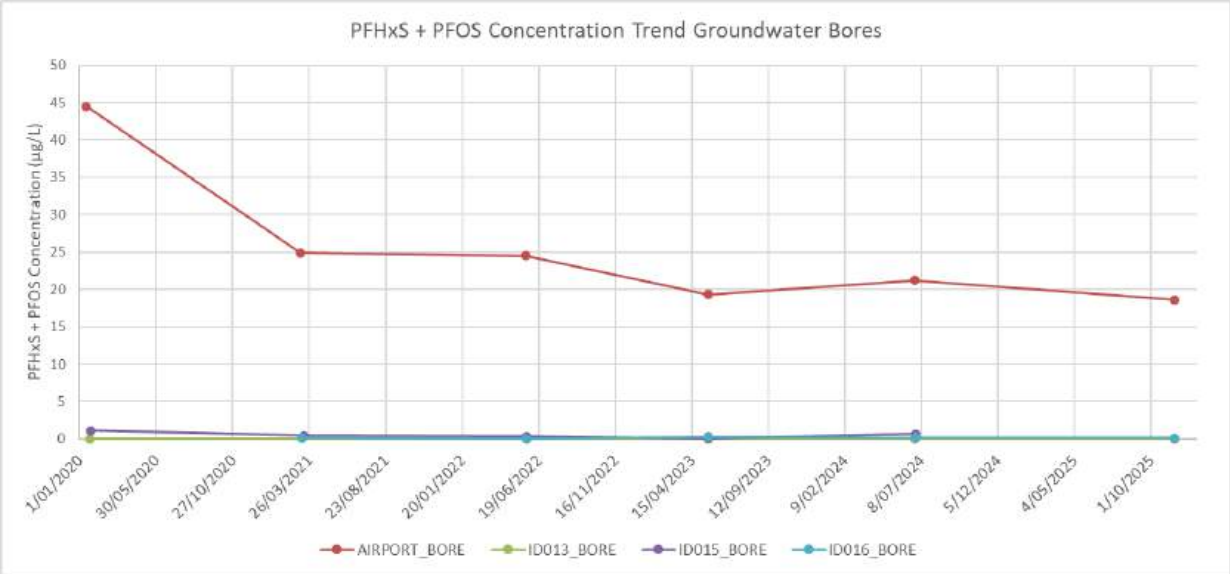


Figure 5-6: Groundwater PFHxS+PFOS Concentration Trends

Mann Kendal trend analysis results for the Airport Bore are discussed in **Section 5.1.1** and included in **Appendix E**. Other groundwater data showed no significant upwards or downwards trends in PFOS, PFOA or PFHxS+PFOS concentrations between 2020 and 2025.

Groundwater-surface water connectivity has not been directly assessed in the Mission Creek Catchment as part of the PFAS investigation. It is noted that the upper section of the Mission Creek Catchment from the airport (WWII_DAM) to Douglas Drive (MC_OMP06) has maintained flow during investigations since 2020. Conversely, the lower section from Douglas Drive to the creek's discharge at the ocean was largely dry during PSI and DSI investigations, with some small sections of ponded, discontinuous water. These observations indicate that the upper section of the catchment may act as a gaining creek (groundwater predominantly discharges to the creek), and the lower section a losing creek (groundwater is predominately recharged by the creek), in particular around Mission Pool. This is consistent with the observed concurrent decrease in PFAS concentrations in both the upper section of Mission Creek (WWII_DAM and MC_OMP01) and the Airport Bore.

5.2.2 Groundwater Assessment Against Screening Criteria

Groundwater assessment against the screening criteria is provided in **Section 5.3** below, relevant to each point of use.

5.3 Nature and Extent of PFAS in Point of Use Water

5.3.1 Water Used for Irrigation

During the 2020 and 2021 monitoring events, PFAS was identified in a private water supply ID013_SW01 (pumped from Mission Creek) used for fruit and vegetable produce irrigation. In monitoring from 2023 to 2025, the pump for ID013_SW01 was no longer in use for irrigation, replaced by groundwater bore ID013_BORE and rainwater. Consistent with previous results, the 2025 PFAS concentrations in ID013_BORE were reported below the LOR.

PFAS was also detected in private Mission Creek catchment groundwater bore ID016_BORE, used for fruit and vegetable irrigation. Reported Sum PFHxS+PFOS concentrations in ID016_BORE have ranged from 0.02 µg/L to 0.29 µg/L between March 2021 and November 2025, reported below the drinking water screening criteria in 2022, and above in the remaining monitoring rounds. In 2025, the concentration of PFHxS+PFOS decreased relative to the 2024 concentration, however no statistically significant concentration trend was observed (**Appendix E**).

The November 2025 reported PFAS concentrations in water used for irrigation at these two locations were below the UTVs for irrigation pathways. These water sources can continue to be used for produce irrigation without management measures based on the current monitoring results.

Water from other creeks may also be used for irrigation. PFAS concentrations in 2025 in other creeks also remained below the UTVs for Watermill, Headstone and Cascade Creeks, protective of this use. As such, the risks of irrigation from creeks other than Mission Creek are assessed to remain low and acceptable, and management is not required.

Screening of Mission Creek water against the HHERA derived vegetable irrigation screening levels indicates this water remains unsuitable for this use. Both PFOS and PFHxS exceeded the screening levels along the length of the creek (with the exception of MC_OMP02 and MC_OMP03).

5.3.2 Water Used for Chicken Watering

PFAS concentrations in ID013_SW01 remained above the LTVs for chicken watering in May 2022 when last monitored, consistent with previous monitoring rounds, although it is noted that the concentrations had increased in 2021. The risk assessment completed as part of the HHERA (based on the previously measured concentrations) indicated that management measures are required to manage the potential exposures of consumers of chicken eggs where chickens drink the water from ID013_SW01. **The requirement for management remains unchanged based on the currently measured concentrations in water pumped from Mission Creek**. As the landholder indicated that since May 2022 this water is no longer used for chicken watering, this pathway is currently managed via the use of rainwater and/or bore water. Continued management via use of rainwater and/or bore water is required.

From May 2023, ID013_BORE has been sampled as a replacement location for ID013_SW01. Reported PFAS concentrations in ID013_BORE were below the LOR in January 2020 and remained below the LOR in May 2023 to 2025. Given the consistent below LOR results reported at ID013_BORE, the need for ongoing monitoring should be assessed in the PMP update.

Screening of surface water in other creeks against the HHERA derived stock watering screening levels (protective of chicken watering) indicates this water remains suitable for this use.

5.3.3 Water Used for Cattle Stock Watering

There are several properties in the Mission Creek catchment where water impacted by PFAS is known to be used, or is potentially used, for watering cattle. Additionally, there are properties in the Watermill / Town Creek catchment where surface water impacted by PFAS is potentially used for watering cattle.

Mission Creek catchment stock watering PFHxS+PFOS concentration trends are indicated on **Figure 5-7** below.

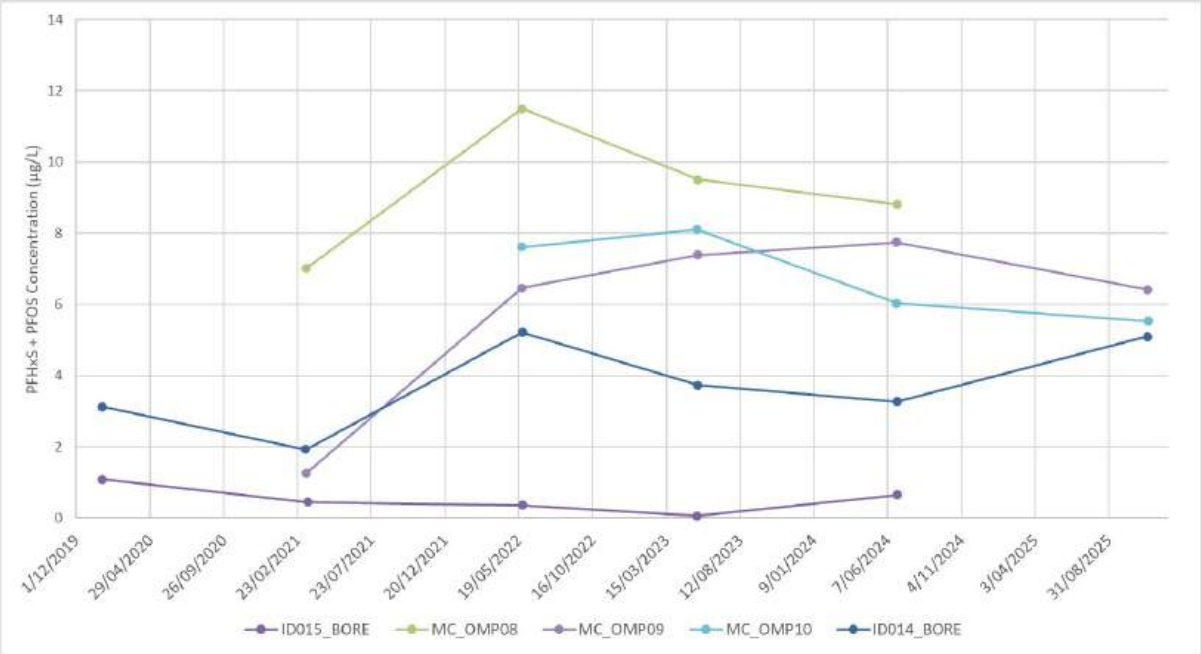


Figure 5-7: Mission Creek Catchment Stock Watering PFHxS+PFOS Concentration Trends

The risk assessment completed as part of the HHERA (based on the previously measured concentrations from 2021) indicated that management measures are required to manage the potential exposure of home consumers or public consumers of cattle products where the cattle have access to Mission Creek water for drinking. The November 2025 reported PFAS concentrations in surface water used for stock watering remained above the LTVs, consistent with previous years. **The requirement for management therefore remains unchanged based on the currently measured concentrations**.

Further to this requirement, PFAS concentrations have increased in a number of cattle watering locations since the HHERA in 2021. The continued measurement of concentrations above those measured in 2021 may indicate an increased PFAS exposure potential for consumers of cattle products, emphasising the requirement for management for both home consumers and public consumers.

Mission Creek Catchment groundwater at ID019, and ID015 when last measured in 2024, were below the LTVs for both PFOS and PFHxS. The ID015 bore PFOS concentration was reported above the Mission Creek stock watering LTV (0.33 µg/L) in 2020 and since then remained below this level. A reduction in management measures at this location should be considered in the updated PMP. No stock watering management is recommended at ID19 bore.

Water from Watermill Creek is also understood to be used for cattle watering. The HHERA assessed the risks from the use of water from Watermill Creek for stock water to be low and acceptable, and that management measures for this use were therefore not required. Concentrations in 2025 remained below the UTVs protective of this use. As such, the risks are assessed to remain low and acceptable, and management for stock watering in the Watermill Creek catchment is not required.

5.3.4 Water Used for Drinking

The laboratory results of drinking water sources are compared to historical results in the table below. Concentrations above the 2025 DWG are indicated in red. As noted in **Section 3.3**, the LTV for domestic water use reference the 2020 NEMP HBGV and these values have been retained for consistency across the monitoring events. To assess the suitability of water use for drinking, the revised 2025 DWG have been applied.

Reference should be made to **Section 2.4.2** for more information on water sources and information collection.

Table 5-1: Comparison of Historical and 2025 PFAS Concentrations in Drinking Water

Area / Sample Location	Historical Water Source	Max Historical Concentration PFOS (µg/L) [1]	Current Water Source	Most Recent Concentration PFOS (µg/L) Nov 2025	Comments
Airport Departure Lounge Fountain (A_TAP15)	Airport Bore	NM	Rainwater Tanks	<0.002	Historically sourced from Airport Bore, now sourced from new airport rainwater tanks. Plumbing has not been replaced but appears to have been effectively flushed.
Airport Maintenance Shed Kitchen (A_TAP4)	Airport Bore	15.2	Airport Bore	0.148	Airport bore water may still be connected, however non-use warnings in place and the kitchen was not in use during the 2025 monitoring event. Continues to exceed DWG.
Fire Station kitchen (FRE_TAP1)	Airport Bore	5.49	Desalinated water	<0.002	Temporarily supplied by desalinated water in new plumbing. Planned future connection to relined rainwater tanks.
EMNI Kitchen Tap (FRE_TAP6)	Airport Bore	NM	Rainwater Tanks	<0.002	It is understood from discussions with NIRC that water is supplied by the relined rainwater tanks noted above.
Waste Centre Kitchen Tap (WASTE_TAP1)	Airport Bore	NM	Rainwater Tanks	<0.002	Airport Bore water no longer connected. Currently connected to new rainwater tanks. Plumbing not replaced, but appears to have been effectively flushed.
Electricity Depot Kitchen Tap (ELEC_TAP)	Airport Bore	NM	Rainwater Tanks	<0.002	Airport Bore water no longer connected. Currently connected to new rainwater tanks. Plumbing not replaced, but appears to have been effectively flushed.

Area / Sample Location	Historical Water Source	Max Historical Concentration PFOS (µg/L) [1]	Current Water Source	Most Recent Concentration PFOS (µg/L) Nov 2025	Comments
BoM Station Kitchen Tap (A_TAP5)	Airport Bore	<0.01	Rainwater Tanks	<0.002	Airport Bore water no longer connected. Currently connected to new rainwater tanks. Plumbing not replaced, but appears to have been effectively flushed.
Hospital Taps (PWS_HOSP_TAP1, PWS_HOSP_TAP4, PWS_HOSP_TAP6)	Airport Bore	<0.01 – 0.46	Rainwater Tanks	<0.002	Plumbing and filters have been replaced since Airport Bore water supply ceased.
Council Works Depot (DEPOT_TANK2)	Airport Bore	5.54	Rainwater Tanks	<0.01	NIRC advised Tank 2 supplies the Council Depot kitchen tap.
Council Works Depot Kitchen Tap (DEPOT_TAP1)	Airport Bore	5.46	Rainwater Tanks	<0.002	-
Council Kitchen Tap (COUNCIL_TAP1)	NA	NA	Rainwater Tanks	<0.002	No suspected historical or current PFAS source.
Water carting water (WC-03)	Groundwater	<0.01	Groundwater	0.004	-
Water carting water (WC-04)	Groundwater	NM	Groundwater	<0.002	-

Table Notes: 1. Concentration when first monitored by Senversa 2020-2021. 2: NM: Not measured. 3: NA: Not applicable.

PFAS concentrations were generally reported below the LOR and water at each of these locations is considered suitable for drinking. The exception is at the airport maintenance shed kitchen (A_TAP4), where concentrations remain above the DWG. Although the source of water at this tap could not be confirmed, discussions with NIRC and the reported concentrations indicate the tap is likely still connected to un-treated Airport Bore water. NIRC advised that this tap in not in use and 'do no use' signage is in place.

PFAS concentrations reported in water carting sources analysed were below the DWG. No PFAS were detected in sample WC-04 above the LOR. PFOS was detected in sample WC-03 in 2025 50% below the DWG (0.004 µg/L). Other PFAS for which DWG are available (PFHxS, PFOA, PFBS) were also detected at concentrations well below the DWG (50% of the DWG or lower). It is noted however, that other PFAS compounds (for which DWG are unavailable) were identified at higher concentrations, with the sum concentration of perfluoroalkane sulfonic acids totalling 0.037 µg/L. Monitoring of this location in 2020 reported PFAS below the LOR, noting that the LOR at that time was higher, above the concentrations reported in 2025.

While DWG for these other PFAS are unavailable, further assessment is warranted to provide confidence that the water can be safely used for drinking. This could include repeat monitoring and further risk assessment.

PFAS concentrations were detected in the fire station kitchen tap during the Year 3 ongoing monitoring event. While the concentrations reported were below the health-based drinking water criteria for regulated PFAS (PFOS, PFHxS and PFOA), some other non-regulated PFAS were identified, including 8:2 fluorotelomer sulfonic acid (FTS). These other PFAS compounds are found in newer generation AFFF (e.g. Ansulite) the use of which has also ceased at the fire station (as of 2021, refer to Senversa 2021b). Given these identifications of other PFAS, and the need for a precautionary

approach which considers all PFAS identified, alternative drinking and washing water were supplied by NIRC and further assessment was undertaken to identify the source, completed by others. It was identified that relining of the rainwater tanks is required due to contamination during the fire truck cleaning program. While relining and validation works are completed, NIRC have advised that a desalination water tank and temporary plumbing have been installed at the fire station connected to the kitchen, laundry and bathroom taps. Results of the 2025 monitoring at the kitchen tap were below the LOR and indicate the temporary water supply and plumbing are effective.

5.3.5 Other Water Uses

The laboratory results of public water sources not used for drinking water are compared to historical results in the table below. Concentrations above the recreational water use assessment criterion for PFOS (2 µg/L) are indicated in red for reference, noting that this value is adopted for indicative purposes, and may not be applicable to / protective of all listed uses for these waters.

Table 5-2: Comparison of Historical and 2025 PFAS Concentrations in Public Water Use

Area / Sample Location	Historical Water Source	PFOS (µg/L) Historical Water Source	Current Water Source	PFOS (µg/L) Nov 2025	Comments
Airport Bore Tank (AIRPORT_BORE)	Airport Bore	33.1	Airport Bore	12.5	Historically used as a holding tank before water was pumped to the fire station and terminal. Currently tank holds untreated Airport Bore water. Water is later filtered by POET filter prior to use. No sample was analysed immediately following filtration.
Ben Christian Down Pipe (AIRPORT_TRUCKFILL)	Airport Bore	14.0	Treated Airport Bore	NM	Not measured in 2025 or post POET installation. Water used to fill public toilet tanks, at the water treatment facility, to supress dust at the quarry and wash gravel at the road depot. Latest NIRC testing results post-filtration in May 2025 0.053 µg/L.
Airport Terminal Bathrooms (A_TAP1)	Airport Bore	0.02	Rainwater Tanks	<0.002	Airport Bore water no longer connected. Currently connected to new Airport rainwater tanks. Plumbing not replaced, but appears to have been effectively flushed. 'Do not drink' signage in place and used for hand washing only.
Public Bathrooms (PWS_CAS_TOILETS, PWS_EB_TOILETS, PWS_HEAD_TOILETS)	Airport Bore, rainwater	20.8 – 21.2	Treated Airport Bore, rainwater	NM	Not measured in 2025. In 2024, post POET installation, PFOS <0.01 – 0.77 µg/L reported in Emily Bay, Cockpit Waterfall and Headstone reserve toilet taps. This is below the adopted recreational screening level. Airport bore water supply varies with rainwater availability.
Fire Hydrants on Airport (FRE_TAP2)	Airport Bore	15.0	Treated Airport Bore and rainwater	0.03	Used for firefighting, training and truck flushing.
Hospital Laundry Tap (PWS_HOSP_TAP8)	Airport Bore	NM	Hospital bore water	<0.002	Plumbing and filters have been replaced since airport bore water supply ceased.
Council Works Depot (DEPOT_TANK1, TANK3)	Airport Bore	<0.01	Rainwater Tanks	<0.01	NIRC advised Tank 1 used for firefighting. New Tank3 installed at rear of depot for rainwater and used for truck washing at the mechanical sheds in the works depot.

Area / Sample Location	Historical Water Source	PFOS (µg/L) Historical Water Source	Current Water Source	PFOS (µg/L) Nov 2025	Comments
Duck Dam Down Pipe	Duck Dam	NM	Duck Dam	NM	Approximated from Duck Dam concentration, PFOS 0.04 µg/L in 2025. This is below the adopted recreational screening level. Water used to wash gravel off-site at the roads depot.

Of the 37 reticulated water supply locations sampled, 20 were below the LTVs for Sum PFHxS+PFOS. Where this water is used for drinking, further assessment has been made against the 2025 DWG (refer to **Section 5.3.4**). Where water is used for other uses, management measures may be reduced and further assessment is provided below.

There is limited potential human exposure to POET-treated Airport Bore water for the supply indicated by NIRC (public bathroom taps, wastewater treatment plant, firefighting and training, quarry dust suppression and gravel washing) given the current understanding of management measures:

- ‘Do not drink’ signs are installed at public bathroom taps across the island.
- Both solids and liquids from the wastewater treatment plant are pumped through a pipeline to an outfall pipe at Headstone Cliff directly into the ocean.

The potential for exposure during non-potable water use including hand washing, firefighting and training, dust suppression, gravel washing and vehicle washing is considered relatively low given the frequency and duration of exposure, the limited potential for PFAS adsorption through the skin and the non-volatile nature of PFAS. The concentrations measured since 2021 are below those assessed during the HHERA, which concluded that the risks associated with firefighters contacting this water for fire systems testing, training and firefighting (prior to management) is assessed **low and acceptable**.

On this basis, the human health risks associated with the ongoing use of this water for the known uses are assessed to be low, and these health risks are currently adequately managed. It should be noted however, that introduction of PFAS to previously unimpacted areas should be limited where possible.

Continued testing of the POET-treated water is required to assess the ongoing effectiveness of the filtration system and whether further management is warranted. Furthermore, further assessment of risk would be required prior to utilisation of this treated water for other purposes.

5.4 Nature and Extent of PFAS in Soil and Biota

5.4.1 Duck Dam

Sediment and water hyacinth from Duck Dam were analysed for PFAS to assess management options for material removed from the dam for routine dam maintenance. Assessment of reuse options for PFAS-contaminated material will be based on the principles that reuse must not lead to an unacceptable risk to the environment and/or human health, or an increase in the level of risk at or near the location in which it is used. NIRC indicated that at present, vegetation removed from the Kingston wetland is composted at the Waste Management Centre and either stockpiled at the current drill ground or supplied across the island as a soil ameliorant. To assess whether this management option is suitable for Duck Dam vegetation and sediment, PFAS concentrations have been compared to the HIL-A assessment criteria protective of *residential land use with accessible soil* in the scenario that compost is applied to residential properties.

Regarding the plant material, the measured concentration (0.001 mg/kg PFOS, at the limit of detection) was below soil screening levels that apply in people's back yards (i.e. HIL-A of 0.003 mg/kg; ecological criterion of 0.003 mg/kg). The HIL-A considers backyard exposures including the uptake of PFAS into home-grown produce, so is relevant for compost. On this basis, the risk associated with composting of this vegetation and application to land is considered to be low. It should be noted however, that introduction of PFAS to previously unimpacted areas (e.g. residential backyards) should be limited where possible.

Regarding the sediment material, the measured PFOS concentration (0.01 mg/kg PFOS) was above current soil screening levels that apply in people's back yards (i.e. HIL-A of 0.003 mg/kg PFOS+PFHxS; ecological criterion of 0.003 mg/kg PFOS). Given the relatively low magnitude of the exceedance, small volumes of sediment adhered to plant material is likely to be acceptable. However, adding a significant volume of sediment, for example sediment removed during dam dredging, with low levels of PFAS to areas that have even lower or no levels of PFAS should be considered only in consultation with the relevant environmental regulator in exceptional circumstances where there is no feasible, practicable alternative. Significant volumes of sediment removal from the dam should therefore either be avoided or appropriately managed to avoid migration of PFAS. Appropriate management may include storage at a site with known existing PFAS contamination where it can be demonstrated that application to that land will result in no increased level of risk.

It is noted that this assessment of material re-use is preliminary in nature and does not constitute a site-specific risk assessment. Should sediment be removed from the dam during clearing, further sampling including leachability analysis and a site-specific risk assessment should be completed to inform suitable management measures.

5.4.2 Ball Bay

Soil analysed from the AFFF storage areas of the Ball Bay Fuel Storage Depot reported detectable PFAS in each of the three sampled locations. Concentrations of PFOS exceeded the ecological criterion of 0.003 mg/kg, however were below the human health commercial criterion of 20 mg/kg. As no vegetation is present on the depot itself, this area is unlikely to provide good ecological habitat, or to support a significant proportion of the diet of terrestrial ecological receptors. These factors mean that risks to terrestrial ecological receptors on the depot are likely to be low. To manage the ongoing risk of stored AFFF leakage into the surrounding environment, it is understood that the AFFF will be removed once a suitable alternative is available on-island.

5.4.3 Airport Down Pipe

Soil from below the Ben Christian down pipe was analysed to assess the impact of historical airport bore water supply to this asset and current POET-treated water supply i.e. spills and overtopping of trucks during filling. Concentrations of PFOS (0.0841 mg/kg) exceeded the ecological criterion of 0.003 mg/kg, however were below the commercial criterion of 20 mg/kg. Given the low magnitude of the exceedance, this concentration is considered to pose a negligible risk to human and ecological health. To reduce the risk of ongoing PFAS introduction to soil from impacted groundwater, ongoing filtration of the airport bore water with the POET should be maintained.

5.4.4 Home Grown Produce

For the following home grown produce consumption pathways, risks were assessed in the DSI or HHERA to be negligible, and further assessment was not required:

- One soil sample from ID013 (Mission Creek catchment) exceeded residential use criteria indicating contamination at this property may require management if the land is for residential uses (with home grown produce). However, no PFAS greater than the LOR was reported in produce from this property.
- An exceedance of residential criteria was identified in sediments from the creek bed behind the depot; this is not residential land but limited produce is collected from this area. The HHERA assessed the risks to be low.

- No exceedances of residential screening criteria were reported at all other off-site locations (including residential properties where potential sources were identified), therefore the PFAS identified was assessed to not present an unacceptable risk for residential land use.

Additional sampling was undertaken during the Year 4 monitoring event to further investigate home grown produce at property ID008 where known AFFF application was previously recorded. PFAS was detected in soil in 2021, below the adopted residential assessment criteria protective of home grown produce consumption, as noted above. Re-analysis in a different area of the garden in 2025 indicated a PFOS concentration marginally above the assessment criteria (0.0052 mg/kg compared to 0.003 mg/kg threshold).

Analysis of representative produce in this area, parsley, silver beet, zucchini and tomato, reported PFAS concentrations in each sample except silver beet. The concentration of PFOS in the tomato sample (0.001 mg/kg) exceeded the FSANZ trigger point for further investigation (0.001 mg/kg, the limit of detection). Additionally, the laboratory-reported sum of perfluoroalkane carboxylic acids in the parsley sample was 0.036 mg/kg. No trigger point has been set for these summed compounds; however it is noted that the concentration of PFOA (the single perfluoroalkane carboxylic acid compound for which a trigger point is available) was below its respective trigger point.

No chickens were kept for egg or meat consumption at this property.

It is noted that the FSANZ (2017) trigger points apply a set of conservative assumptions, including that the consumers are aged 2 to 6 years, have a high consumption rate of fruits and vegetables, and that 100% of an individual's fruit or vegetable intake comes from the contaminated source. Given these assumptions and the PFAS detections reported, further assessment is warranted which considers the nature of the produce in which exceedances were identified and likely consumption rates.

PFAS accumulates in humans over long periods of exposure to PFAS-affected sources, such as food or water. Given this, while we work to undertake further assessment and (if necessary) develop management measures, continuing consumption of this home-produce would not have a significant impact on long-term exposure PFAS exposure and risk. Notwithstanding this, we note that reducing or limiting the consumption of home produce from this property is an effective way for the residents to reduce their current exposure to PFAS. Recommendations are included in **Section 6.2**.

6.0 Conceptual Site Model

6.1 Conceptual Site Model Summary

A conceptual summary of the linkages between the main PFAS source areas, pathways and identified receptors is provided below, with further information provided in the DSI report (Senversa, 2021b). No changes to the source areas, pathways or potential receptors were identified as a result of the Year 4 monitoring event.

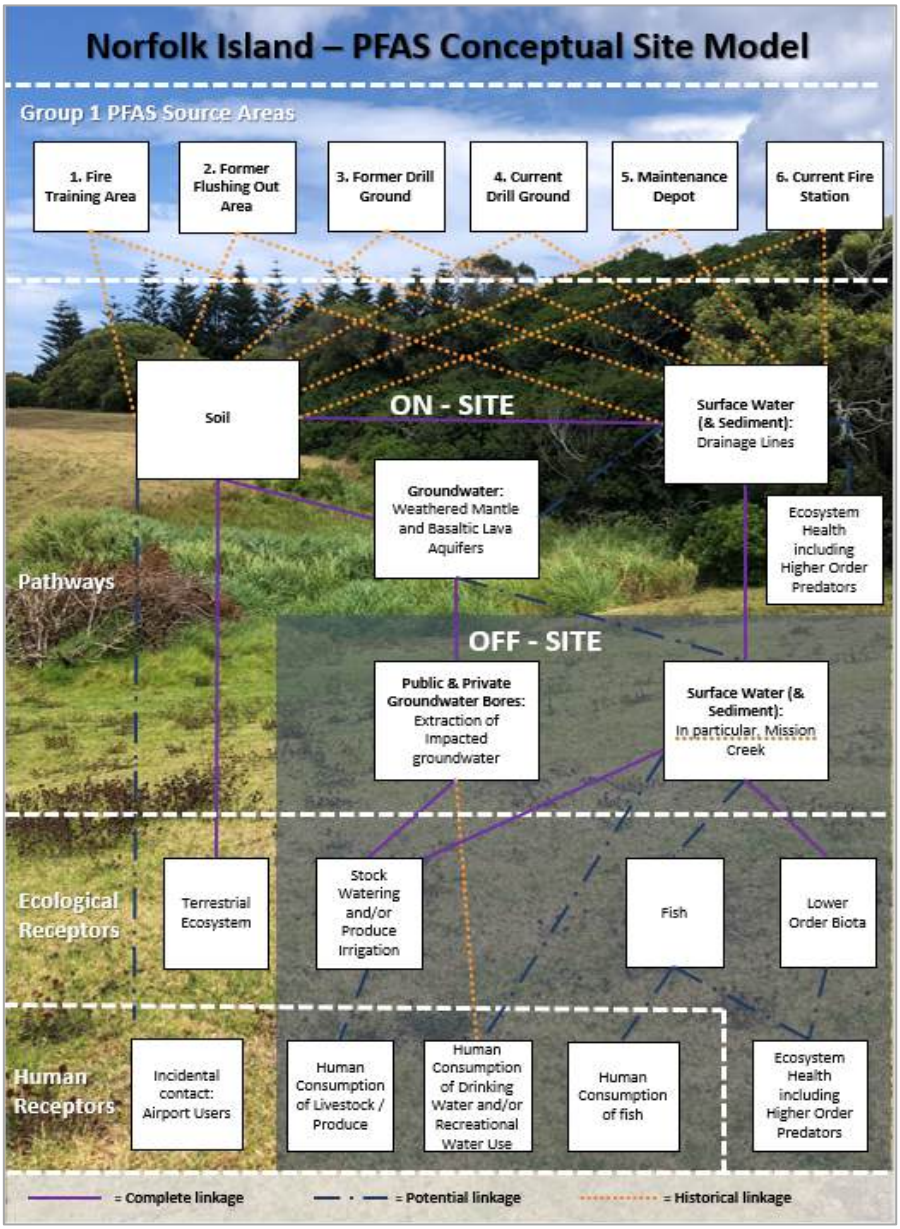


Figure 6-1: PFAS Conceptual Site Model Flow Chart

6.2 Assessment of Management Actions

Following the identification of PFAS in groundwater in late 2019, DITRDCSA have worked with NIRC to undertake a number of management actions aimed at reducing the potential for exposure to the identified PFAS within the on-island environment both on-Airport and off-Airport.

Use of Legacy AFFF for training ceased in 2015 and emergency use ceased in 2022. Legacy AFFF foams are no longer used, and a fluorine free foam has since been introduced at the airport. The fire trucks have been cleaned and tested for PFAS and are now reported free of Legacy AFFF. AFFF continues to be stored at Ball Bay Fuel Depot in case of emergency and replacement is planned when an alternative product is available on-island.

Source management options are assessed in the PMP (Senversa, 2021e). Additional management actions already in place and recommended as a result of the November 2025 monitoring results are summarised in **Table 6-1** below.

A future reduction in monitoring may be warranted at locations where the LTVs were not met. This will be assessed in the updated PMP.

Table 6-1: PFAS Management Actions

Risk Identification	Do Existing Management Measures Mitigate Risks?	Recommended Additional or Ongoing Controls
1. Mission Creek: Home consumption or public consumption of cattle, chicken eggs or other animal products where the animal drinks water sourced from Mission Creek.	**Yes, though further measures warranted for long-term effective management** Advice provided in results letters to continue not using water for chicken watering. Advice provided in results letters that further assessment / management warranted to ensure ongoing effective mitigation of risks associated with the consumption of livestock products where cattle drink water sourced from Mission Creek. The letters also indicated that PFAS accumulates in humans over long periods of exposure to PFAS-affected sources, such as food or water and (given this), while further assessment and management approaches are completed, continuing with current practices would not have a significant impact on long-term exposure.	The findings from this monitoring round confirm the previous recommendations for further management of the use of water from Mission Creek for watering cattle: • Further assessment and/or management of cattle access to PFAS impacted water sources required. PFAS concentrations during this monitoring event remained consistent with those measured in 2022, and above those measured in earlier sampling (2020 and 2021), following which it was assessed that further assessment/management was warranted. • Alternatively, measures to manage human exposure (e.g. livestock product consumption advice) could be considered. For chickens at ID013, PFAS was <LOR in the currently used water supply (ID013_BORE). Previous advice to livestock farmers remains unchanged and use of water from Mission Creek (e.g. ID013_SW01) for watering chickens should not be recommenced.
2. Mission Creek Catchment: use of surface water or groundwater for any extractive use (other than livestock watering)	**Yes** There are no current unacceptable exposures identified; and advice has been provided not to use water for drinking / domestic use. ID013_SW01 water no longer in use.	Continued advice not to use surface water for produce irrigation required. Continued advice to not use surface water or groundwater for drinking / domestic use required.

Risk Identification	Do Existing Management Measures Mitigate Risks?	Recommended Additional or Ongoing Controls
3. Groundwater near airport: use of groundwater from or nearby the Airport for any extractive use.	**Yes** There are no current extractive uses of water identified, with the exception of uses assessed to be associated with low and acceptable risks. The POET filtration system was in use at the Airport Bore at the time of the Monitoring Event and treated water utilised by NIRC for various public uses. Ben Christian Down Pipe was locked at the time of the Monitoring Event and 'do not drink' signs were observed at public toilet taps.	NIRC advised that routine testing of the POET-treated water is undertaken. While there is low exposure potential for the known uses of this water, continued testing of the treated water will be required to assess the ongoing effectiveness of the POET filtration system and whether further management is warranted. In order to demonstrate effective management, the off-site transfer of PFAS via use of this water should be minimised to the extent practicable, and this requires that the filtration system continues to be effective in removing PFAS (i.e. functioning optimally and removing PFAS in line with design specifications). PFAS detected in water carting supply was below the DWG, however confirmatory sampling is recommended.
4. Drinking or washing water at public facilities formerly supplied by the Airport Bore and now supplied by alternative water supply including: the fire station, other on-Airport buildings, hospital, and council works depot.	**Yes** Sampling undertaken at public facilities indicate that replacement of the PFAS impacted water source, Airport Bore, with alternative water supplies (rainwater and desalinated water) has been successful in reducing PFAS concentrations to levels below the guidance values. This includes replacement of the hospital pipework and filters (NIRC, 2021). This means it is safe to use the water, including for sensitive uses such as drinking and eating. Water in the airport maintenance shed kitchen remains unsuitable for drinking and 'do not drink' signs should be maintained.	Continued controls are required such that PFAS impacted water (e.g., Airport Bore) is not used to supply drinking water while above HBGV. This includes the lock on the Ben Christian Down Pipe and signage at public bathroom taps and the airport maintenance shed kitchen.
5. Watermill Creek Catchment: use of surface water or groundwater for drinking water or domestic use.	**Yes** No current use of water for drinking water or domestic use identified, and advice has been provided not to use water for drinking / domestic use.	Continued ongoing monitoring of PFAS concentrations in Watermill Creek, with a view to revising advice if concentrations decrease below the guidance value in the future.
6. Exposures to freshwater aquatic ecosystems.	**Pending source management**	Continued ongoing monitoring of PFAS concentrations, with a view to ecological risk revision if concentrations decrease below guideline values in the future.
8. Consumption of produce grown in PFAS source areas.	**Further assessment warranted** Advice will be provided to relevant landholders, and additional assessment undertaken to determine the requirement for management measures.	-

7.0 Conclusions

Senversa undertook the PFAS OMP Year 4 monitoring event from 17 to 21 November 2025 in general accordance with the SAQP. The following findings were made addressing the objectives outlined in **Section 1.2**:

Objective 1: Trends in PFAS concentrations in the environment

- Reported concentrations of PFAS in the Airport Bore and the upper Mission Creek catchment surface water generally decreased between 2020 and November 20205, representing a statistically significant downwards trend for PFOA, PFOS and PFHxS+PFOS at the Airport Bore and WWII_DAM, and for PFHxS+PFOS at MC_OMP01.
- PFAS concentrations have been variable over time in both the remaining Mission Creek surface water locations and Watermill Creek. Approximately half of the sampled locations reported PFAS concentrations marginally higher in 2025 than 2024, however most remained within the historical range. Highest-to-date concentrations were recorded at ID014 in the Mission Creek Catchment and Watermill Creek Duck Dam for selected PFAS, however the increases above previous maximum concentrations were marginal.
- PFAS concentrations in surface water generally decreased with increased distance from source areas.

Data Gap Assessment

- PFAS were detected in home grown produce grown in PFAS-impacted soil and waterway biota and sediments, requiring further assessment.
- Concentrations in water carting water were below the adopted assessment criteria. However, detections of PFAS for which guidelines are unavailable require further assessment.
- PFAS were detected in soil at source areas Ball Bay fuel depot and below the Ben Christian Down Pipe, below the commercial land use assessment criteria.

Objective 2: The Effectiveness of the Selected Management Options in Managing Current Risks

Reported PFAS concentrations were below the UTVs at all sample locations. A number of point of use sample locations reported PFAS concentrations below the LTVs.

The selected management options are considered appropriate for the purpose of managing current risks. In addition, the following changes in management options and potential further assessments should be considered:

- Stock watering: Further assessment and/or management of cattle access to PFAS impacted water sources requires further consideration. PFAS concentrations during this monitoring event remained consistent with those measured in 2022, and above those measured in earlier sampling (2020 and 2021), following which it was assessed that further assessment/management was warranted. Alternatively, measures to manage human exposure (e.g. livestock product consumption advice) could be considered.
- Airport Bore water use: The POET filtration system has been successfully installed on the Airport Bore and NIRC advised that routine testing of the treated water is undertaken. While there is low exposure potential for the known uses of this water, continued testing of the treated water will be required to assess the ongoing effectiveness of the POET filtration system and whether further management is warranted. The efficacy of the POET filter at reducing PFAS concentrations in the Airport Bore water and suitable concentration threshold limits will require assessment prior to utilisation of this treated water for other purposes.
- Bore water carting: Further assessment of the quality of water carting water sources used for potable water supply is recommended to confirm detected PFAS concentrations and facilitate a more detailed assessment including consideration of PFAS compounds for which no DWG are available. It is noted that no unacceptable risk has been identified to-date.

- Home produce growing: Where PFAS was detected in home grown produce, further assessment is warranted which considers the nature of the produce in which exceedances were identified and likely consumption rates. This will allow the requirement for management to be determined.
- Biota and sediment re-use: Based on a preliminary assessment, the re-use of biota from Duck Dam, e.g. for compost, is considered to pose a low and acceptable risk. The re-use of sediment should be avoided or appropriately managed to avoid increasing the level of risk on less-impacted sites.

A future reduction in monitoring may be warranted at locations where the LTVs were not met; this will be assessed in the revised PMP.

Objective 3: Has the Change in Conditions Resulted in a Change in the Risk Profile

The change in PFAS concentrations has not resulted in a potentially unacceptable change to the risk profile and therefore no change in management controls is required.

8.0 Principles and Limitations of Investigation

8.1 General Principles and Limitations of Investigation

The following principles are an integral part of site contamination assessment practices and are intended to be referred to in resolving any ambiguity or exercising such discretion as is accorded the user or site assessor.

Table 8-1: Principles and Limitations of Investigation

Area	Field Observations and Analytical Results
Elimination of Uncertainty	Some uncertainty is inherent in all site investigations. Furthermore, any sample, either surface or subsurface, taken for chemical testing may or may not be representative of a larger population or area. Professional judgment and interpretation are inherent in the process, and even when exercised in accordance with objective scientific principles, uncertainty is inevitable. Additional assessment beyond that which was reasonably undertaken may reduce the uncertainty.
Failure to Detect	Even when site investigation work is executed competently and in accordance with the appropriate Australian guidance, such as the National Environmental Protection (Assessment of Site Contamination) Amendment Measure ('the NEPM'), it must be recognised that certain conditions present especially difficult target analyte detection problems. Such conditions may include, but are not limited to, complex geological settings, unusual or generally poorly understood behaviour and fate characteristics of certain substances, complex, discontinuous, random, or heterogeneous distributions of existing target analytes, physical impediments to investigation imposed by the location of services, structures and other man-made objects, and the inherent limitations of assessment technologies.
Limitations of Information	The effectiveness of any site investigation may be compromised by limitations or defects in the information used to define the objectives and scope of the investigation, including inability to obtain information concerning historic site uses or prior site assessment activities despite the efforts of the user and assessor to obtain such information. Information received during preparation of this report from third parties or anecdotal sources, such as the sources of PFAS identified, was not able to be independently verified by Defence records.
Chemical Analysis Error	Chemical testing methods have inherent uncertainties and limitations. Senversa routinely seeks to require the laboratory to report any potential or actual problems experienced, or non-routine events which may have occurred during the testing, so that such problems can be considered in evaluating the data.
Level of Assessment	The investigation herein should not be considered to be an exhaustive assessment of environmental conditions on a property. There is a point at which the effort of information obtained and the time required to obtain it outweigh the benefit of the information gained and, in the context of private transactions and contractual responsibilities, may become a material detriment to the orderly conduct of business. If the presence of target analytes is confirmed on a property, the extent of further assessment is a function of the degree of confidence required and the degree of uncertainty acceptable in relation to the objectives of the assessment.
Comparison with Subsequent Inquiry	The justification and adequacy of the investigation findings in light of the findings of a subsequent inquiry should be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made.
Data Useability	Investigation data generally only represent the site conditions at the time the data were generated. Therefore, the usability of data collected as part of this investigation may have a finite lifetime depending on the application and use being made of the data. In all respects, a future reader of this report should evaluate whether previously generated data are appropriate for any subsequent use beyond the original purpose for which they were collected, or are otherwise subject to lifetime limits imposed by other laws, regulations or regulatory policies.
Nature of Advice	The investigation works herein are intended to develop and present sound, scientifically valid data concerning actual site conditions. Senversa does not seek or purport to provide legal or business advice.

9.0 References

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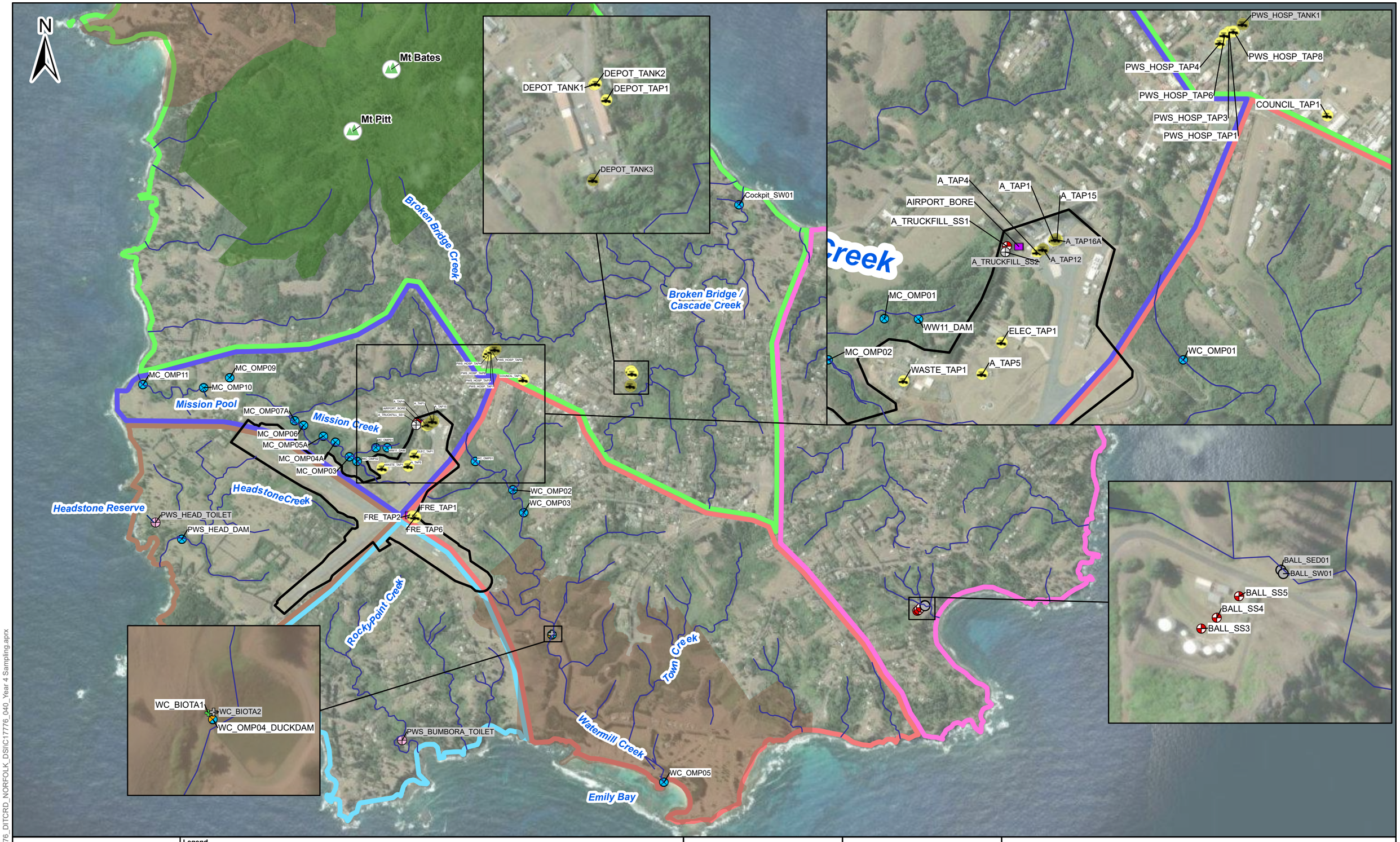
Figures



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Legend

Sample Location
- Biota
- Groundwater
- Pump
- Stock Water (Cow)
- Stock Water (Vegetables and Chicken)
- Surface Soil
- Surface Water
- Tap Water
- Surface Water And Sediment

Sample Location (Not Analysed)
- Surface Soil
- Surface Water and Sediment
- Tap Water
- Biota
- Toilet Water
- Waterways
- National Park
- Kingston and Arthurs Vale Historic Area (KAVHA)
- Mountain Peak

Approximate Extent of Surface Water Catchments
- Headstone Creek
- Mission Creek
- Mt Pitt / Broken Bridge Creek
- Rocky Point Creek
- Stockyard Creek
- Town Creek / Watermill Creek
- Approximate Airport Boundary

Aerial Imagery: Esri World Imagery

Created:	A. Murray	Date:	24/02/2026
Reviewed:	M. Agnew	Revision:	0
Approved:	M. Agnew	Scale:	1:30,000 (A3)
File:	C17776_040_F001_Ongoing_Monitoring_Plan_Locations		

0 250 500 1,000 1,500 Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Figure No: 1

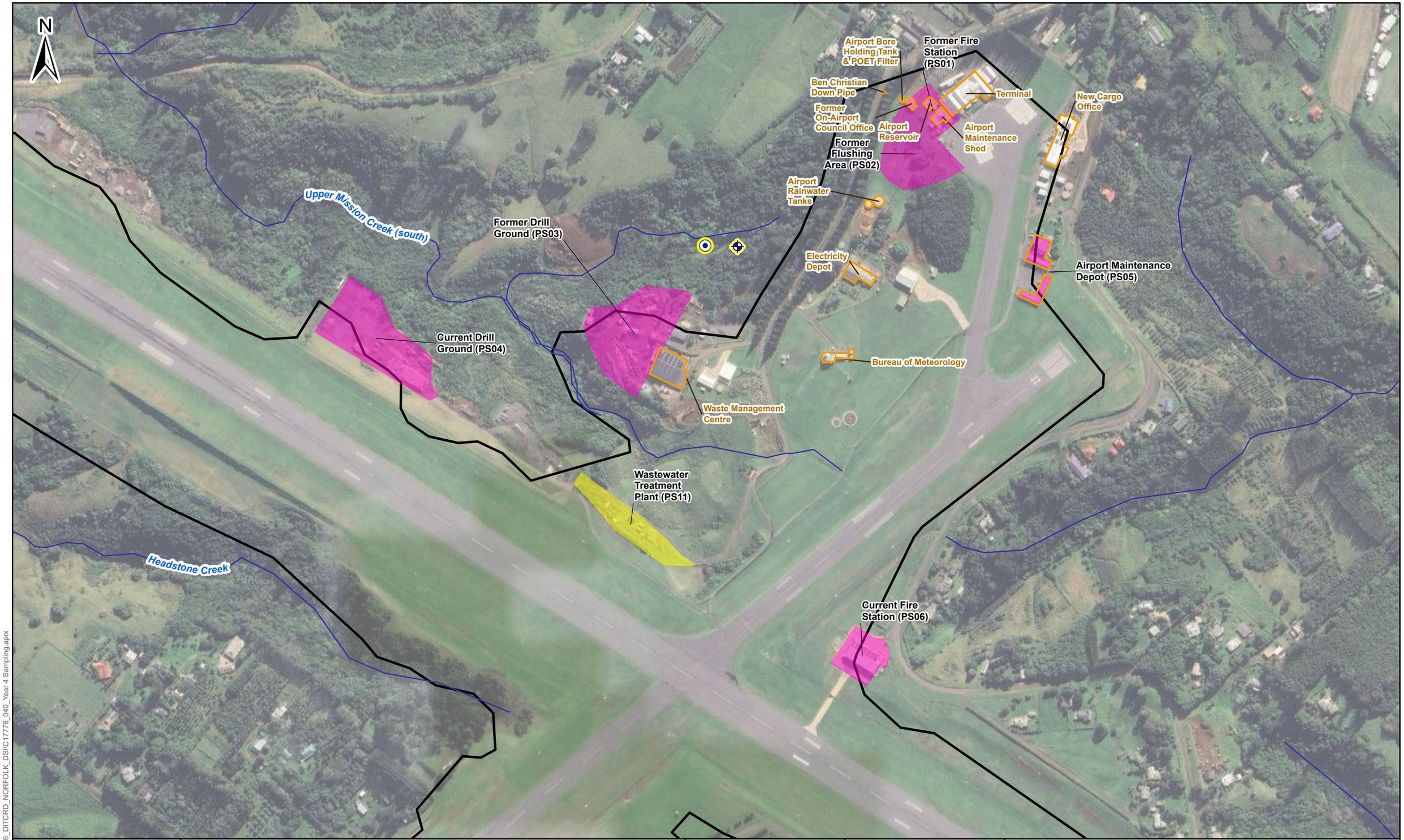
Title: Ongoing Monitoring Plan Locations

Project: OMP Year 4 Monitoring Report (2025)

Location: Norfolk International Airport

Client: Department of Infrastructure, Transport, Regional Development and Communication

Path: S:\01_Jobs\1.NSW_Jobs\S17776_DITCRD_NORFOLK_DSIC\17776_040_Year 4 Sampling.aprx



Legend

- Site Feature
- PFAS Source Areas (Potential and Confirmed)
  - Group 1 Source Area
  - Group 2 Source Area
- Airport Bore
- WWII Dam
- Approximate Airport Boundary
- Waterways

Aerial Imagery: Google

Created:	A. Murray	Date:	24/02/2026
Reviewed:	M. Agnew	Revision:	0
Approved:	M. Agnew	Scale:	1:5,000 (A3)
File:	C17776_040_F002a_Site Layout		

0 50 100 200 Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Figure No: 2a

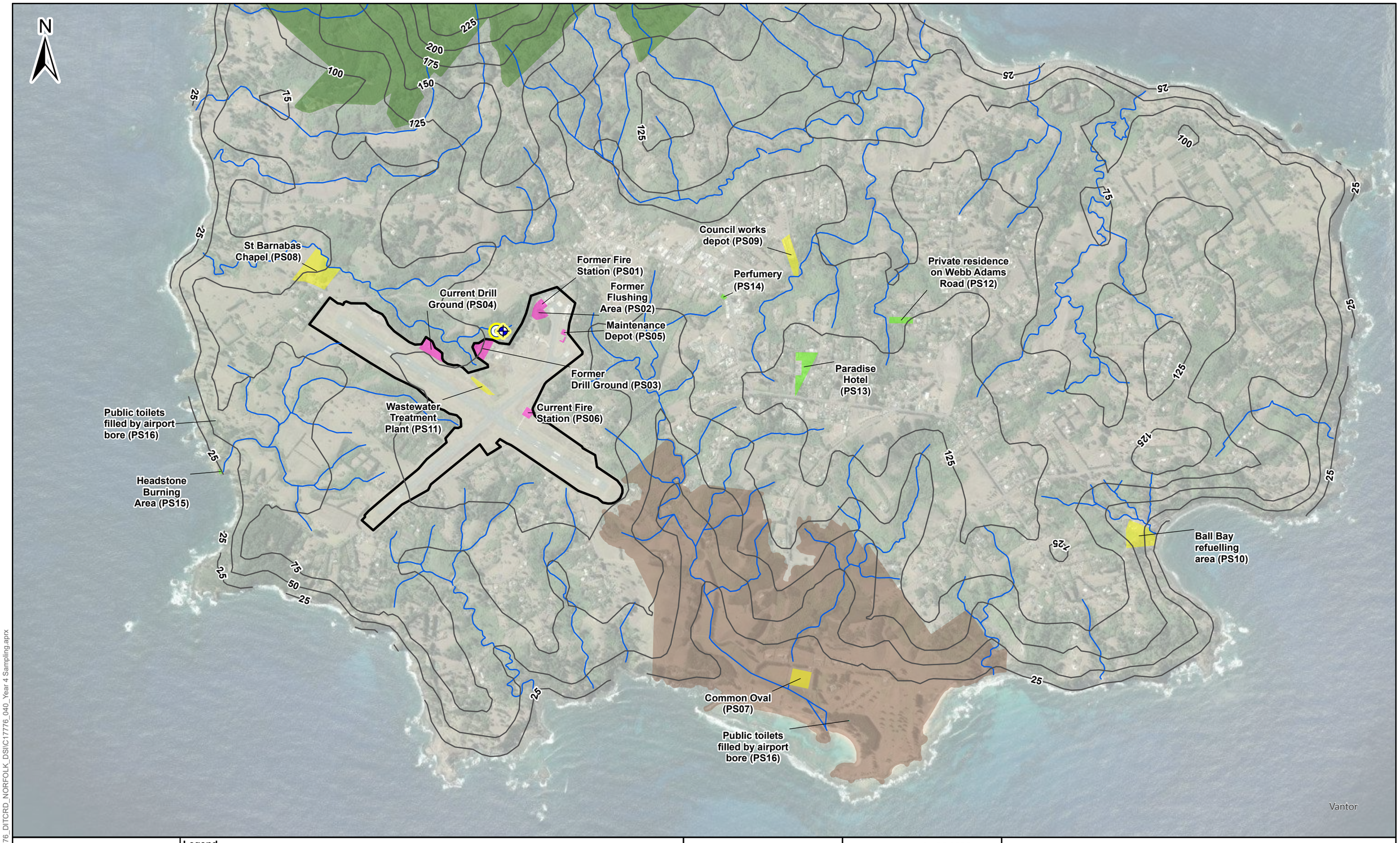
Title: Site Layout and PFAS Source Areas Onsite

Project: OMP Year 4 Monitoring Report (2025)

Location: Norfolk International Airport

Client: Department of Infrastructure, Transport, Regional Development and Communication

Path: S:\01_Jobs\1.NSW_Jobs\S17776_DITCRD_NORFOLK_DSI\C17776_040_Year 4 Sampling.aprx



Legend

- Airport Bore
- WWII Dam
- Mountain Peak
- Elevation Contours (approximate)
- Creek
- Approximate Airport Boundary

PFAS Source Areas (Potential and Confirmed)

- Group 1 Source Area
- Group 2 Source Area
- Group 3 Source Area
- Group 4 Source Area

Areas of Significance

- National Park
- Kingston and Arthurs Vale Historic Area (KAVHA)

Aerial Imagery: Esri World Imagery

Created:	J. Currie	Date:	24/02/2026
Reviewed:	M. Agnew	Revision:	2
Approved:	M. Agnew	Scale:	1:25,000 (A3)
File:	C17776_040_F002b_Site Layout, PFAS_Offsite		

0 250 500 1,000 Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Figure No: 2b

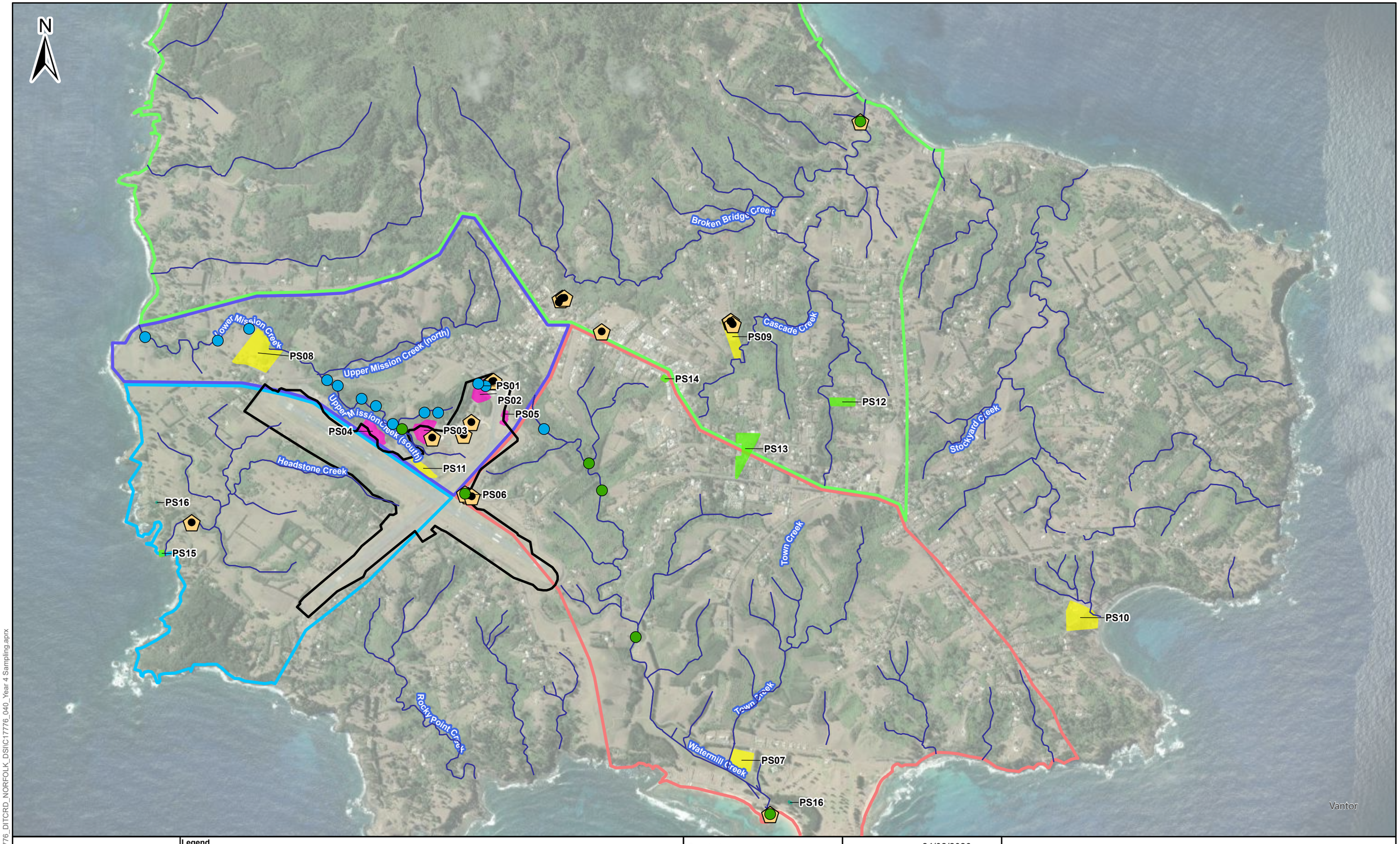
Title: Site Layout and PFAS Source Areas Offsite

Project: OMP Year 4 Monitoring Report (2025)

Location: Norfolk International Airport

Client: Department of Infrastructure, Transport, Regional Development and Communication

Path: S:\01_Jobs\1.NSW_Jobs\S17776_DITCRD_NORFOLK_DSI\C17776_040_Year 4 Sampling.aprx



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Legend

- Approximate Airport Boundary
- Waterways

Approximate Extent of Surface Water Catchments

- Headstone Creek
- Mission Creek
- Mt Pitt / Broken Bridge Creek
- Town Creek / Watermill Creek

PFAS Source Areas (Potential and Confirmed)

- Group 1 Source Area
- Group 2 Source Area
- Group 3 Source Area
- Group 4 Source Area

PFOS Exceedances - Ecological

- Above Aquatic ecosystems DGV - 90% protection (0.13 µg/L).
- Above Aquatic ecosystems DGV - 95% and 99% protection (0.00023 µg/L).
- Below LOR
- Below LTV

Aerial Imagery : Esri World Imagery

Created:	A. Murray	Date:	24/02/2026
Reviewed:	M. Agnew	Revision:	0
Approved:	M. Agnew	Scale:	1:25,000 (A3)
File:	C17776_040_F003_Water Eco		

0 250 500 1,000 Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Figure No: 3

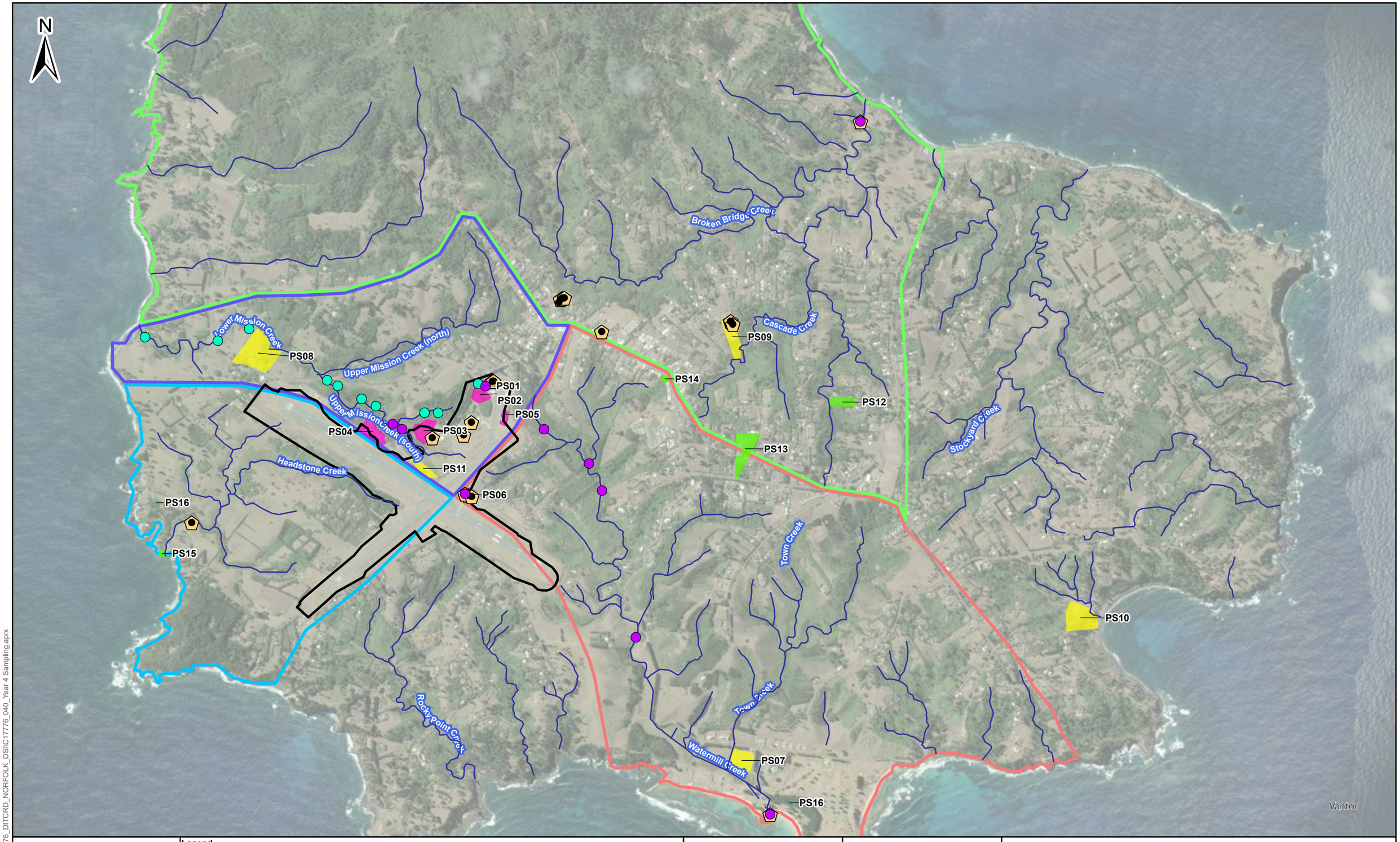
Title: Surface Water and Groundwater Concentrations PFOS - Ecological Guidelines

Project: OMP Year 4 Monitoring Report (2025)

Location: Norfolk International Airport

Client: Department of Infrastructure, Transport, Regional Development and Communication

Path: S:\01_Jobs\1.NSW_Jobs\S17776_DITCRD_NORFOLK_DSI\C17776_040_Year 4 Sampling.aprx



Legend

- Approximate Airport Boundary
- Waterways

Approximate Extent of Surface Water Catchments

- Headstone Creek
- Mission Creek
- Mt Pitt / Broken Bridge Creek
- Town Creek / Watermill Creek

PFAS Source Areas (Potential and Confirmed)

- Group 1 Source Area
- Group 2 Source Area
- Group 3 Source Area
- Group 4 Source Area

PFOS Exceedances - Human Health

- Above Recreational Water - Health (2µg/L)
- Above Drinking Water - Health (0.008µg/L)
- Below LOR
- Below LTV

Aerial Imagery : Esri World Imagery

Created:	A. Murray	Date:	24/02/2026
Reviewed:	M. Agnew	Revision:	0
Approved:	M. Agnew	Scale:	1:25,000 (A3)
File:	C17776_040_F004_Water HH		

0 250 500 1,000 Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Figure No: 4

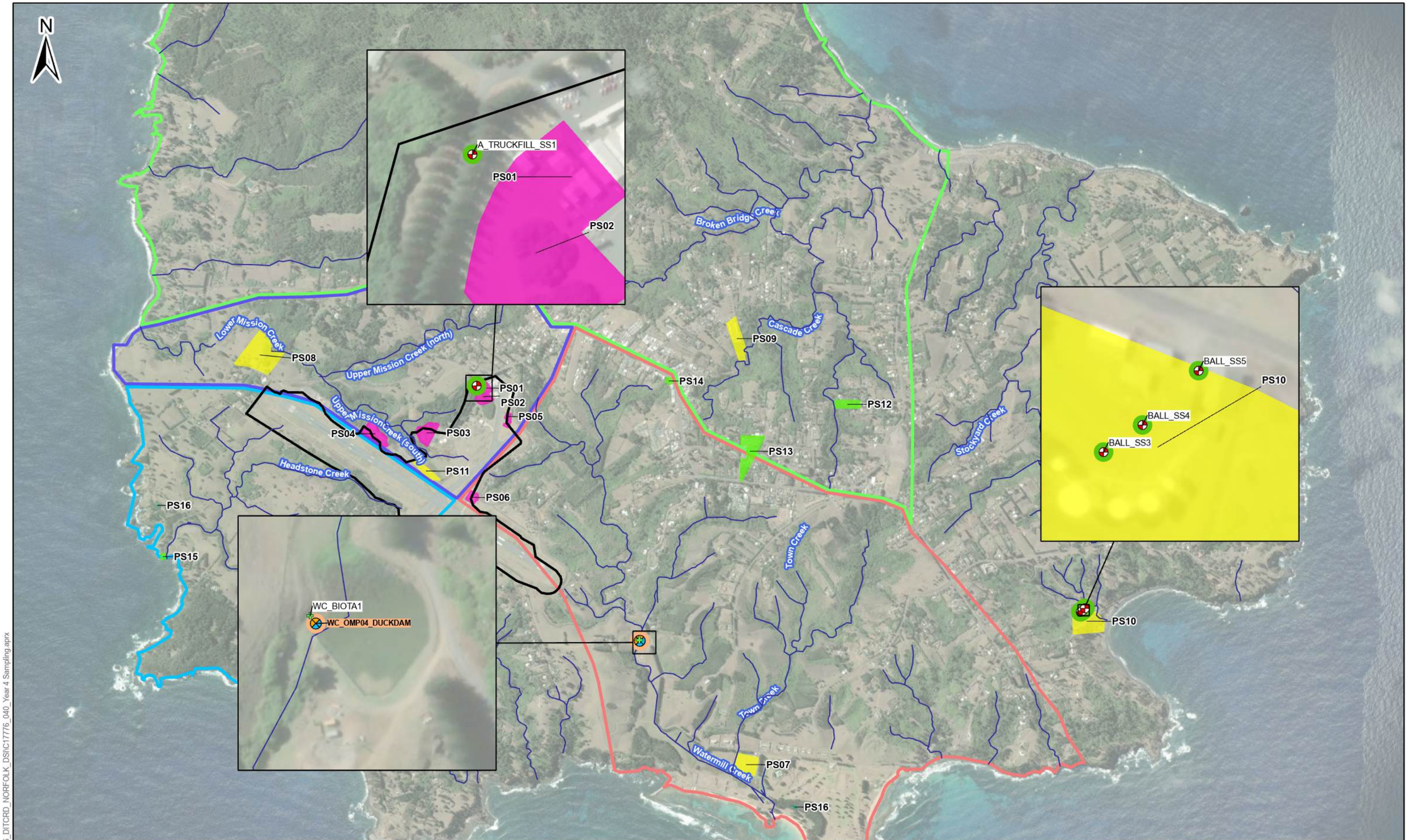
Title: Surface Water and Groundwater Concentrations PFOS - Human Health Guidelines

Project: OMP Year 4 Monitoring Report (2025)

Location: Norfolk International Airport

Client: Department of Infrastructure, Transport, Regional Development and Communication

Path: S:\01_Jobs\1.NSW_Jobs\S17776_DITCRD_NORFOLK_DSI\C17776_040_Year 4 Sampling.aprx



senversa

Legend

- Biota
- Surface Soil
- Surface Water And Sediment

PFOS exceedances for applicable land use setting

- Above Soil Human Health Commercial (20mg/kg)
- Above Soil Maintenance of Ecosystems & Human Health Residential (0.003 mg/kg)
- Above Soil Maintenance of Ecosystems Commercial (0.003 mg/kg)
- Waterways
- Approximate Airport Boundary

Approximate Extent of Surface Water Catchments

- Headstone Creek
- Mission Creek
- Mt Pitt / Broken Bridge Creek
- Town Creek / Watermill Creek

PFAS Source Areas (Potential and Confirmed)

- Group 1 Source Area
- Group 2 Source Area
- Group 3 Source Area
- Group 4 Source Area

Aerial Imagery : Esri World Imagery

Created:	A. Murray	Date:	27/02/2026
Reviewed:	M. Agnew	Revision:	0
Approved:	M. Agnew	Scale:	1:25,000 (A3)
File:	C17776_040_F005_Soil Sediment Biota Exceedances		

0 250 500 1,000 Metres

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Figure No: 5

Title: Soil, Sediment and Biota Concentrations PFOS - Ecological and Human Health Guidelines

Project: OMP Year 4 Monitoring Report (2025)

Location: Norfolk International Airport

Client: Department of Infrastructure, Transport, Regional Development and Communication

Path: S:\01_Jobs\1 NSW_Jobs\S17776_DITCRD_NORFOLK_DSI\C17776_040_Year 4 Sampling.aprx

Tables

Table 1: Upper Trigger Values: Mission Creek Irrigation Water
DITRDCSA Norfolk PFAS

			Location Code	ID013_BORE	ID016_BORE
			Field ID	ID013_BORE	ID016_BORE
			Date	17/11/2025	17/11/2025
			Sample Type	Normal	Normal
			Lab Report No.	ES2537583	ES2537583
	Unit	EQL	Upper Trigger Value - Mission Creek		
(n:2) Fluorotelomer Sulfonic Acids					
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005		<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005		<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005		<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005		<0.05	<0.05
Perfluoroalkane Carboxylic Acids					
Perfluorohexanoic acid (PFHxA)	µg/L	0.002		<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002		<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002		<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002		<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005		<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005		-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002		<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01		<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002		<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002		<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002		<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002		<0.01	<0.01
Perfluoroalkane Sulfonic Acids					
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	4.2[#1]	<0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002		<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	2.5[#1]	<0.01	0.09
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002		<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002		<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002		<0.02	<0.02
Sum of PFHxS and PFOS	µg/L	0.002		<0.01	0.09
Perfluoroalkyl Sulfonamides					
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005		<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002		<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002		<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005		<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005		<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005		<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002		<0.02	<0.02
PFAS					
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01		-	-
Sum of PFAS	µg/L	0.002		<0.01	0.09

Comments
#1 Mission Creek water used for irrigation

Table 2: Upper Trigger Values: Other Creeks Water
DITRDCSA Norfolk PFAS

			Location Code	WC_OMP01	WC_OMP02	WC_OMP03	WC_OMP04_DUCKDAM	WC_OMP05
			Field ID	WC_OMP01	WC_OMP02	WC_OMP03	WC_OMP04_DUCKDAM	WC_OMP05
			Date	17/11/2025	17/11/2025	18/11/2025	18/11/2025	18/11/2025
			Sample Type	Normal	Normal	Normal	Normal	Normal
			Lab Report No.	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583
	Unit	EQL	Upper Trigger Value - Other Creeks					
(n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids								
Perfluorohexanoic acid (PFHxA)	µg/L	0.002		0.12	0.06	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002		0.04	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005		-	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002		0.02	<0.01	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids								
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	0.5[#1]	0.28	0.12	0.05	0.04	0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002		0.10	0.07	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	1.3[#1]	0.73	0.43	0.12	0.10	0.03
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002		0.11	0.06	<0.02	<0.02	<0.02
Sum of PFHxS and PFOS	µg/L	0.002		1.01	0.55	0.17	0.14	0.04
Perfluoroalkyl Sulfonamides								
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02	<0.02
PFAS								
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01		-	-	-	-	-
Sum of PFAS	µg/L	0.002		1.44	0.76	0.17	0.14	0.04

Comments
#1 Surface water from other creeks.

Table 3: Upper Trigger Values: Cascade and Headstone Creeks Water
DITRDCSA Norfolk PFAS

			Location Code	Cockpit_SW01	PWS_HEAD_DAM
			Field ID	COCKPIT_SW01	PWS_HEAD_DAM
			Date	18/11/2025	19/11/2025
			Sample Type	Normal	Normal
			Lab Report No.	ES2537583	ES2537583
	Unit	EQL	Upper Trigger Value - Cascade and Headstone Creek		
(n:2) Fluorotelomer Sulfonic Acids					
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005		<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005		<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005		<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005		<0.05	<0.05
Perfluoroalkane Carboxylic Acids					
Perfluorohexanoic acid (PFHxA)	µg/L	0.002		<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002		<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002		<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002		<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005		<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005		-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002		<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01		<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002		<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002		<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002		<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002		<0.01	<0.01
Perfluoroalkane Sulfonic Acids					
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002		0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002		<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002		0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002		<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002		<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002		<0.02	<0.02
Sum of PFHxS and PFOS	µg/L	0.002	0.07[#1]	0.02	<0.01
Perfluoroalkyl Sulfonamides					
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005		<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002		<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002		<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005		<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005		<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005		<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002		<0.02	<0.02
PFAS					
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01		-	-
Sum of PFAS	µg/L	0.002		0.02	<0.01

Comments
#1 Surface water from Cascade Creek / Headstone Creek

Table 4: Lower Trigger Values: Public Water Use
DITRDCSA Norfolk PFAS

	Unit	EQL	Lower Trigger Value - Public	Location Code	A_TAP1	A_TAP4	A_TAP5	A_TAP15	AIRPORT_BORE	COUNCIL_TAP1	DEPOT_TANK1	DEPOT_TANK2	DEPOT_TAP1	ELEC_TAP1	FRE_TAP1	FRE_TAP2	FRE_TAP6	MC_OMP01	MC_OMP02	MC_OMP03
				Field ID	A_TAP1	A_TAP4	A_TAP5	A_TAP15	AIRPORT_BORE	COUNCIL_TAP1	DEPOT_TANK1	DEPOT_TANK2	DEPOT_TAP1	ELEC_TAP1	FRE_TAP1	FRE_TAP2	FRE_TAP6	MC_OMP01	MC_OMP02	MC_OMP03
				Date	17/11/2025	19/11/2025	19/11/2025	17/11/2025	17/11/2025	20/11/2025	17/11/2025	17/11/2025	17/11/2025	19/11/2025	19/11/2025	19/11/2025	19/11/2025	19/11/2025	20/11/2025	20/11/2025
				Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
				Lab Report No.	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583
(n:2) Fluorotelomer Sulfonic Acids																				
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																				
Perfluorohexanoic acid (PFHxA)	µg/L	0.002			<0.002	0.014	<0.002	<0.002	0.66	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	0.92	0.07	0.09
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002			<0.002	0.004	<0.002	<0.002	0.16	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	0.23	0.13	0.13
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	<0.005	<0.005	<0.005	-	<0.005	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002			<0.002	0.002	<0.002	<0.002	0.14	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	0.18	0.03	0.03
Perfluorobutanoic acid (PFBA)	µg/L	0.01			<0.01	<0.01	<0.01	<0.01	0.1	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	<0.1	<0.01	0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002			<0.002	0.005	<0.002	<0.002	0.35	<0.002	<0.01	<0.01	<0.002	<0.002	<0.002	<0.01	<0.002	0.47	0.02	0.02
Perfluoroalkane Sulfonic Acids																				
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002			<0.002	0.148	<0.002	<0.002	12.5	<0.002	<0.01	<0.01	<0.002	<0.002	<0.002	0.03	<0.002	16.3	0.05	0.33
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002			<0.002	0.008	<0.002	<0.002	0.54	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	0.71	0.04	0.06
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			<0.002	0.060	<0.002	<0.002	6.05	<0.002	<0.01	<0.01	<0.002	<0.002	<0.002	0.02	<0.002	6.50	0.24	0.37
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002			<0.002	0.005	<0.002	<0.002	0.34	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	0.48	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002			<0.002	0.007	<0.002	<0.002	0.61	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	0.84	0.04	0.06
Sum of PFHxS and PFOS	µg/L	0.002	0.07[#1]		<0.002	0.208	<0.002	<0.002	18.6	<0.002	<0.01	<0.01	<0.002	<0.002	<0.002	0.05	<0.002	22.8	0.29	0.70
Perfluoroalkyl Sulfonamides																				
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005			<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002			<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.002	<0.002	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02
PFAS																				
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of PFAS	µg/L	0.002			<0.002	0.253	<0.002	<0.002	21.7	<0.002	<0.01	<0.01	<0.002	<0.002	<0.002	0.05	<0.002	27.1	0.62	1.09

Comments
#1 Reticulated water supplies at public facilities (Risk ID 4)
Surface water from Mission Creek (Risk ID 2)
Surface water from Watermill Creek (Risk ID 5)
Groundwater at airport (airport bore) (Risk ID 3)

Table 4: Lower Trigger Values: Public Water Use
DITRDCSA Norfolk PFAS

	Unit	EQL	Lower Trigger Value - Public	Location Code	MC_OMP04a	MC_OMP05a	MC_OMP06	MC_OMP07a	MC_OMP09	MC_OMP10	MC_OMP11	WWII_DAM	PWS_HOSP_TAP1	PWS_HOSP_TAP3	PWS_HOSP_TAP4	PWS_HOSP_TAP6	PWS_HOSP_TAP8	WASTE_TAP1	WC-03_BORE
				Field ID	MC_OMP04a	MC_OMP05a	MC_OMP06	MC_OMP07a	MC_OMP09	MC_OMP10	MC_OMP11	WW11_DAM	PWS_HOSP_TAP1	PWS_HOSP_TAP3	PWS_HOSP_TAP4	PWS_HOSP_TAP6	PWS_HOSP_TAP8	WASTE_TAP1	WC-03_BORE
				Date	20/11/2025	20/11/2025	20/11/2025	20/11/2025	17/11/2025	19/11/2025	17/11/2025	20/11/2025	18/11/2025	18/11/2025	18/11/2025	18/11/2025	18/11/2025	20/11/2025	18/11/2025
				Sample Type	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
				Lab Report No.	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583
(n:2) Fluorotelomer Sulfonic Acids																			
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluoroalkane Carboxylic Acids																			
Perfluorohexanoic acid (PFHxA)	µg/L	0.002			0.53	0.56	0.55	0.52	0.35	0.31	0.31	0.49	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002			0.17	0.17	0.16	0.18	0.10	0.10	0.10	0.12	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005			-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002			0.10	0.10	0.10	0.08	0.06	0.06	0.06	0.11	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid (PFBA)	µg/L	0.01			0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid (PFDA)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002			0.22	0.23	0.22	0.22	0.14	0.14	0.13	0.30	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroalkane Sulfonic Acids																			
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002			10.7	5.77	5.09	5.38	3.99	3.49	3.79	13.5	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.004
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002			0.42	0.43	0.41	0.43	0.33	0.26	0.30	0.47	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.008
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			3.18	3.19	3.37	2.96	2.43	2.04	2.31	3.87	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.016
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002			0.19	0.17	0.18	0.17	0.14	0.12	0.12	0.27	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002			0.38	0.39	0.39	0.39	0.31	0.24	0.26	0.39	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.009
Sum of PFHxS and PFOS	µg/L	0.002	0.07[#1]		13.9	8.96	8.46	8.34	6.42	5.53	6.10	17.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.020
Perfluoroalkyl Sulfonamides																			
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
PFAS																			
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of PFAS	µg/L	0.002			16.2	11.3	10.7	10.6	7.98	6.86	7.49	19.7	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.037

Comments

#1 Reticulated water supplies at public facilities (Risk ID 4)
Surface water from Mission Creek (Risk ID 2)
Surface water from Watermill Creek (Risk ID 5)
Groundwater at airport (airport bore) (Risk ID 3)

Table 4: Lower Trigger Values: Public Water Use
DITRDCSA Norfolk PFAS

	Unit	EQL	Lower Trigger Value - Public	Location Code: WC-04	WC_OMP01	WC_OMP02	WC_OMP03	WC_OMP04_DUCK DAM	WC_OMP05
				Field ID: WC-04	WC_OMP01	WC_OMP02	WC_OMP03	WC_OMP04_DUCK DAM	WC_OMP05
				Date: 18/11/2025	17/11/2025	17/11/2025	18/11/2025	18/11/2025	18/11/2025
				Sample Type: Normal	Normal	Normal	Normal	Normal	Normal
				Lab Report No.: ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583
(n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids									
Perfluorohexanoic acid (PFHxA)	µg/L	0.002		<0.002	0.12	0.06	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002		<0.002	0.04	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005		<0.005	-	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01		<0.01	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002		<0.002	0.02	<0.01	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids									
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002		<0.002	0.28	0.12	0.05	0.04	0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002		<0.002	0.10	0.07	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002		<0.002	0.73	0.43	0.12	0.10	0.03
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002		<0.002	0.11	0.06	<0.02	<0.02	<0.02
Sum of PFHxS and PFOS	µg/L	0.002	0.07[#1]	<0.002	1.01	0.55	0.17	0.14	0.04
Perfluoroalkyl Sulfonamides									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005		<0.005	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002		<0.002	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS									
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01		-	-	-	-	-	-
Sum of PFAS	µg/L	0.002		<0.002	1.44	0.76	0.17	0.14	0.04

Comments

#1 Reticulated water supplies at public facilities (Risk ID 4)
Surface water from Mission Creek (Risk ID 2)
Surface water from Watermill Creek (Risk ID 5)
Groundwater at airport (airport bore) (Risk ID 3)

Table 5: Lower Trigger Values: Cattle Stock Watering
DITRDCSA Norfolk PFAS

			Location Code	ID014_BORE	ID019_BORE	MC_OMP09	MC_OMP10
			Field ID	ID014_BORE	ID019_BORE	MC_OMP09	MC_OMP10
			Date	17/11/2025	20/11/2025	17/11/2025	19/11/2025
			Sample Type	Normal	Normal	Normal	Normal
			Lab Report No.	ES2537583	ES2537583	ES2537583	ES2537583
	Unit	EQL	Lower Trigger Value - Stock Watering				
(n:2) Fluorotelomer Sulfonic Acids							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids							
Perfluorohexanoic acid (PFHxA)	µg/L	0.002		0.35	0.02	0.35	0.31
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002		0.11	<0.02	0.10	0.10
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005		-	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002		0.06	<0.02	0.06	0.06
Perfluorobutanoic acid (PFBA)	µg/L	0.01		<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002		0.13	<0.01	0.14	0.14
Perfluoroalkane Sulfonic Acids							
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	0.33[#1]	2.90	0.07	3.99	3.49
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002		0.26	0.02	0.33	0.26
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	1.2[#1]	2.20	0.12	2.43	2.04
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002		0.13	<0.02	0.14	0.12
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002		0.31	0.03	0.31	0.24
Sum of PFHxS and PFOS	µg/L	0.002		5.10	0.19	6.42	5.53
Perfluoroalkyl Sulfonamides							
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005		<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002		<0.02	<0.02	<0.02	<0.02
PFAS							
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01		-	-	-	-
Sum of PFAS	µg/L	0.002		6.57	0.26	7.98	6.86

Comments
#1 Surface water - Mission Creek water (used to water stock on e.g. properties A, B, C prior to management) (Risk ID 1)

Table 6: Lower Trigger Values Chicken Watering
DITRDCSA Norfolk PFAS

			Location Code	ID013_BORE
			Field ID	ID013_BORE
			Date	17/11/2025
			Sample Type	Normal
			Lab Report No.	ES2537583
	Unit	EQL	Lower Trigger Value - ID013	
(n:2) Fluorotelomer Sulfonic Acids				
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005		<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005		<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005		<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005		<0.05
Perfluoroalkane Carboxylic Acids				
Perfluorohexanoic acid (PFHxA)	µg/L	0.002		<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002		<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002		<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002		<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005		<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005		-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002		<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01		<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002		<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002		<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002		<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002		<0.01
Perfluoroalkane Sulfonic Acids				
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	0.9[#1]	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002		<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	1.3[#1]	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002		<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002		<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002		<0.02
Sum of PFHxS and PFOS	µg/L	0.002		<0.01
Perfluoroalkyl Sulfonamides				
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005		<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002		<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002		<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005		<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005		<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005		<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002		<0.02
PFAS				
Sum of US EPA PFAS (PFOS + PFOA)	µg/L	0.01		-
Sum of PFAS	µg/L	0.002		<0.01

Comments
#1 Mission Creek water on property ID013 (used to water chickens prior to management) (Risk ID 1)

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health																
Monitoring Zone									Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport	Airport
Location Code									A_TAP1	A_TAP1	A_TAP1	A_TAP1	A_TAP1	A_TAP4	A_TAP4	A_TAP4	A_TAP4	A_TAP5	A_TAP5	A_TAP15	A_TAP15	AIRPORT_BORE	AIRPORT_BORE	AIRPORT_BORE	AIRPORT_BORE
Field ID									A_TAP1	A_TAP1	A_TAP1	A_TAP1	A_TAP1	A_TAP4	A_TAP4	A_TAP4	A_TAP4	A_TAP5	A_TAP5	A_TAP15	A_TAP15	PWS_AIRPORT_BORE	AIRPORT_BORE	AIRPORT_BORE	AIRPORT_BORE
Date									09/03/2021	24/05/2022	17/05/2023	25/06/2024	**17/11/2025**	16/03/2021	24/05/2022	17/05/2023	**19/11/2025**	16/03/2021	**19/11/2025**	17/05/2023	**17/11/2025**	14/01/2020	09/03/2021	25/05/2022	17/05/2023
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2111278	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111280	ES2218760-AC	ES2317554	ES2537583	ES2111280	ES2537583	ES2317554	ES2537583	ES2002626	ES2111278	ES2218760-AC	ES2317554
(n:2) Fluorotelomer Sulfonic Acids																									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																									
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							<0.02	0.90	<0.02	<0.02	<0.002	<0.02	0.97	<0.02	0.014	<0.02	<0.002	<0.02	<0.002	1.35	1.32	0.96	0.68
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							<0.02	0.23	<0.02	<0.02	<0.002	<0.02	0.25	<0.02	0.004	<0.02	<0.002	<0.02	<0.002	0.33	0.30	0.24	0.20
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	-	-	<0.05	<0.005	-	-	-	<0.005	-	<0.005	-	<0.005	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							<0.02	0.19	<0.02	<0.02	<0.002	<0.02	0.21	<0.02	0.002	<0.02	<0.002	<0.02	<0.002	0.28	0.29	0.22	0.17
Perfluorobutanoic acid (PFBA)	µg/L	0.01							<0.1	0.1	<0.1	<0.1	<0.01	<0.1	0.2	<0.1	<0.01	<0.1	<0.01	<0.1	<0.01	0.2	0.2	0.1	0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	<0.01	0.45	<0.01	<0.01	<0.002	<0.01	0.49	<0.01	0.005	<0.01	<0.002	<0.01	<0.002	0.57	0.68	0.50	0.37
Perfluoroalkane Sulfonic Acids																									
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	*0.02*	***14.8***	*0.06*	*0.02*	<0.002	*0.08*	***15.2***	<0.01	*0.148*	<0.01	<0.002	*0.03*	<0.002	***33.1***	***17.2***	***16.8***	***13.1***
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							<0.02	0.94	<0.02	<0.02	<0.002	<0.02	1.06	<0.02	0.008	<0.02	<0.002	<0.02	<0.002	1.62	1.35	1.16	0.83
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	<0.02	7.15	<0.01	<0.01	<0.002	0.03	7.06	<0.01	0.060	0.04	<0.002	<0.01	<0.002	11.4	7.68	7.67	6.21
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							<0.02	0.51	<0.02	<0.02	<0.002	<0.02	0.56	<0.02	0.005	<0.02	<0.002	<0.02	<0.002	0.92	0.69	0.63	0.46
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		<0.02	0.75	<0.02	<0.02	<0.002	<0.02	0.81	<0.02	0.007	<0.02	<0.002	<0.02	<0.002	1.27	1.13	0.88	0.65
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	0.02	22.0	0.06	0.02	<0.002	0.11	22.3	<0.01	0.208	0.04	<0.002	0.03	<0.002	44.5	24.9	24.5	19.3
Perfluoroalkyl Sulfonamides																									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
PFAS																									
Sum of PFAS	µg/L	0.002							0.02	26.0	0.06	0.02	<0.002	0.11	26.8	<0.01	0.253	0.04	<0.002	0.03	<0.002	51.0	30.8	29.2	22.8

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Airport	Airport	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public
Location Code									AIRPORT_BORE	AIRPORT_BORE	COUNCIL_TAP1	DEPOT_TANK1	DEPOT_TANK1	DEPOT_TANK1	DEPOT_TANK1	DEPOT_TANK1	DEPOT_TANK2	DEPOT_TANK2	DEPOT_TANK2	DEPOT_TANK2	DEPOT_TANK2	DEPOT_TANK3	DEPOT_TANK3
Field ID									AIRPORT_BORE	AIRPORT_BORE	COUNCIL_TAP1	DEPOT_TANK1	DEPOT_TANK1	DEPOT_TANK 1	DEPOT_TANK1	DEPOT_TANK1	DEPOT_TANK2	DEPOT_TANK2	DEPOT_TANK 2	DEPOT_TANK2	DEPOT_TANK2	DEPOT_TANK3	DEPOT_TANK3
Date									25/06/2024	**17/11/2025**	**20/11/2025**	21/01/2020	24/05/2022	16/05/2023	24/06/2024	**17/11/2025**	21/01/2020	24/05/2022	16/05/2023	24/06/2024	**17/11/2025**	11/03/2021	24/05/2022
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2421874	ES2537583	ES2537583	ES2002819	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2002819	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111278	ES2218760-AC
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health															
(n:2) Fluorotelomer Sulfonic Acids																							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																							
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							0.96	0.66	<0.002	<0.02	0.03	<0.02	<0.02	<0.02	0.38	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							0.27	0.16	<0.002	<0.02	0.03	<0.02	<0.02	<0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							<0.05	-	<0.005	-	-	-	<0.05	-	-	-	-	<0.05	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							0.22	0.14	<0.002	<0.02	0.02	<0.02	<0.02	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01							0.2	0.1	<0.01	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	0.50	0.35	<0.002	<0.01	0.02	<0.01	<0.01	<0.01	0.17	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids																							
Perfluorononane sulfonate (PFNS)	µg/L	0.02							0.05	-	-	-	-	-	<0.02	-	-	-	-	<0.02	-	-	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	***14.5***	***12.5***	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	***5.54***	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							0.97	0.54	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	0.45	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	6.71	6.05	<0.002	<0.02	<0.01	<0.01	<0.01	<0.01	3.47	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							0.54	0.34	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		0.89	0.61	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	0.35	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							0.35	-	-	-	-	-	<0.02	-	-	-	-	<0.02	-	-	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	21.2	18.6	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	9.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroalkyl Sulfonamides																							
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS																							
Sum of PFAS	µg/L	0.002							26.2	21.7	<0.002	<0.01	0.20	<0.01	<0.01	<0.01	10.8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public
Location Code									DEPOT_TANK3	DEPOT_TANK3	DEPOT_TAP1	DEPOT_TAP1	DEPOT_TAP1	DEPOT_TAP1	DEPOT_TAP1	DEPOT_TAP1	ELEC_TAP1	ELEC_TAP1	FRE_TAP1	FRE_TAP1	FRE_TAP1	FRE_TAP1	FRE_TAP1	FRE_TAP2
Field ID									DEPOT_TANK 3	DEPOT_TANK3	DEPOT_TAP	DEPOT_TAP1	DEPOT_TAP	DEPOT_TAP	DEPOT_TAP1	DEPOT_TAP1	ELEC_TAP1	ELEC_TAP1	FRE_TAP1	FRE_TAP1	FRE_TAP1	FRE_TAP1	FRE_TAP1	FRE_TAP1
Date									16/05/2023	24/06/2024	21/01/2020	11/03/2021	24/05/2022	16/05/2023	24/06/2024	**17/11/2025**	19/05/2023	**19/11/2025**	20/01/2020	12/03/2021	24/05/2022	18/05/2023	25/06/2024	**19/11/2025**
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2317554	ES2421874	ES2002819	ES2111278	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2317554	ES2537583	ES2002817	ES2111256	ES2218760-AC	ES2317554	ES2421874	ES2537583
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health																
(n:2) Fluorotelomer Sulfonic Acids																								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	0.44	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05
Perfluoroalkane Carboxylic Acids																								
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							<0.02	<0.02	0.37	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	0.37	<0.02	<0.02	<0.02	0.02	<0.002
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	0.03	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							<0.02	<0.02	0.09	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	0.09	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	<0.05	-	-	-	-	<0.05	<0.005	-	<0.005	-	-	-	-	<0.05	<0.005
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							<0.02	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	0.07	<0.02	<0.02	<0.02	0.05	<0.002
Perfluorobutanoic acid (PFBA)	µg/L	0.01							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.1	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	<0.01	<0.01	0.16	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.002	0.16	<0.01	<0.01	<0.01	0.08	<0.002
Perfluoroalkane Sulfonic Acids																								
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	<0.02	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.02	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	<0.01	<0.01	***5.46***	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.002	***5.49***	<0.01	<0.01	<0.01	<0.01	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							<0.02	<0.02	0.42	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	0.41	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	<0.01	<0.01	3.33	<0.02	<0.01	<0.01	<0.01	<0.002	<0.01	<0.002	3.14	<0.02	<0.01	<0.01	<0.01	<0.002
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							<0.02	<0.02	0.23	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	0.23	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		<0.02	<0.02	0.34	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	0.31	<0.02	<0.02	<0.02	<0.02	<0.002
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	<0.02	-	-	-	-	<0.02	-	-	-	-	-	-	-	<0.02	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	<0.01	<0.01	8.79	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.002	8.63	<0.01	<0.01	<0.01	<0.01	<0.002
Perfluoroalkyl Sulfonamides																								
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02	<0.02	<0.002
PFAS																								
Sum of PFAS	µg/L	0.002							<0.01	<0.01	10.5	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.002	10.3	<0.01	<0.01	<0.01	0.62	<0.002

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public	Public
Location Code									FRE_TAP2	FRE_TAP2	FRE_TAP2	FRE_TAP2	FRE_TAP6	PWS_HOSP_TAP1	PWS_HOSP_TAP1	PWS_HOSP_TAP1	PWS_HOSP_TAP1	PWS_HOSP_TAP3	PWS_HOSP_TAP3	PWS_HOSP_TAP3	PWS_HOSP_TAP4	PWS_HOSP_TAP4
Field ID									FRE_TAP2	FRE_TAP2	FRE_TAP2	FRE_TAP2	FRE_TAP6	PWS_HOSP_TAP1	PWS_HOSP_TAP1	PWS_HOSP_TAP1	PWS_HOSP_TAP1	PWS_HOSP_TAP3	PWS_HOSP_TAP3	PWS_HOSP_TAP3	PWS_HOSP_TAP4	PWS_HOSP_TAP4
Date									24/05/2022	18/05/2023	25/06/2024	**19/11/2025**	**19/11/2025**	15/01/2020	13/02/2020	10/03/2021	**18/11/2025**	13/02/2020	10/03/2021	**18/11/2025**	13/02/2020	10/03/2021
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2537583	ES2002622	EM2002483	ES2111281	ES2537583	EM2002483	ES2111281	ES2537583	EM2002483	ES2111281
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health														
(n:2) Fluorotelomer Sulfonic Acids																						
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																						
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	-	<0.05	-	<0.005	-	-	-	<0.005	-	-	<0.005	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01							<0.1	<0.1	<0.1	<0.1	<0.01	<0.1	<0.1	<0.1	<0.01	<0.1	<0.1	<0.01	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	<0.01	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.002	<0.01	<0.01	<0.002	<0.01	<0.01
Perfluoroalkane Sulfonic Acids																						
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	<0.01	<0.01	*0.04*	*0.03*	<0.002	***0.45***	***0.46***	<0.01	<0.002	*0.30*	<0.01	<0.002	***0.43***	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	<0.01	<0.01	0.03	0.02	<0.002	0.05	0.04	<0.02	<0.002	0.04	<0.02	<0.002	0.04	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	<0.01	<0.01	0.07	0.05	<0.002	0.50	0.50	<0.01	<0.002	0.34	<0.01	<0.002	0.47	<0.01
Perfluoroalkyl Sulfonamides																						
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02
PFAS																						
Sum of PFAS	µg/L	0.002							<0.01	<0.01	0.07	0.05	<0.002	0.50	0.50	<0.01	<0.002	0.34	<0.01	<0.002	0.47	<0.01

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Public	Public	Public	Public	Public	Public	Public	Water Carter	Water Carter	Water Carter	Water Carter	Water Carter	Private	Private	Private	Private
Location Code									PWS_HOSP_TAP4	PWS_HOSP_TAP6	PWS_HOSP_TAP6	PWS_HOSP_TAP8	WASTE_TAP1	WASTE_TAP1	WASTE_TAP1	WC-01	WC-02	WC-04	WC-03_BORE	WC-03_BORE	ID013_BORE	ID013_BORE	ID013_BORE	ID013_BORE
Field ID									PWS_HOSP_TAP4	PWS_HOSP_TAP6	PWS_HOSP_TAP6	PWS_HOSP_TAP8	WASTE_TAP	WASTE_TAP 1	WASTE_TAP1	WC-01	WC-02	WC02	WC-03_BORE	WC01	ID013_BORE	ID013_BORE	ID013_BORE	ID013_BORE
Date									**18/11/2025**	14/03/2021	**18/11/2025**	**18/11/2025**	25/05/2022	16/05/2023	**20/11/2025**	15/01/2020	16/01/2020	**18/11/2025**	17/01/2020	**18/11/2025**	22/01/2020	18/05/2023	25/06/2024	**17/11/2025**
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2537583	ES2111264	ES2537583	ES2537583	ES2218760-AC	ES2317554	ES2537583	ES2002617	ES2002616	ES2537583	ES2002618	ES2537583	ES2002831	ES2317553	ES2421874	ES2537583
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health																
(n:2) Fluorotelomer Sulfonic Acids																								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																								
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							<0.005	-	<0.005	<0.005	-	-	<0.005	-	-	<0.005	-	<0.005	-	-	<0.05	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01							<0.01	<0.1	<0.01	<0.01	<0.1	<0.1	<0.01	<0.1	<0.1	<0.01	<0.1	<0.01	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	<0.002	<0.01	<0.002	<0.002	<0.01	<0.01	<0.002	<0.01	<0.01	<0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids																								
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	<0.002	<0.01	<0.002	<0.002	*0.01*	<0.01	<0.002	<0.01	<0.01	<0.002	<0.01	*0.004*	<0.01	<0.01	<0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	0.008	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	<0.002	<0.02	<0.002	<0.002	<0.01	<0.01	<0.002	<0.02	<0.02	<0.002	<0.02	0.016	<0.02	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	0.009	<0.02	<0.02	<0.02	<0.02
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	<0.002	<0.01	<0.002	<0.002	0.01	<0.01	<0.002	<0.01	<0.01	<0.002	<0.01	0.020	<0.01	<0.01	<0.01	<0.01
Perfluoroalkyl Sulfonamides																								
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.005	<0.05	<0.005	<0.005	<0.05	<0.05	<0.005	<0.05	<0.05	<0.005	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.002	<0.02	<0.002	<0.002	<0.02	<0.02	<0.002	<0.02	<0.02	<0.002	<0.02	<0.002	<0.02	<0.02	<0.02	<0.02
PFAS																								
Sum of PFAS	µg/L	0.002							<0.002	<0.01	<0.002	<0.002	0.01	<0.01	<0.002	<0.01	<0.01	<0.002	<0.01	0.037	<0.01	<0.01	<0.01	<0.01

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Private	Private	Private	Private	Private	Private	Private	Private	Private	Private	Private	Private	Private	Private	Private	Private	Private
Location Code									ID013_SW01	ID013_SW01	ID013_SW01	ID014_BORE	ID014_BORE	ID014_BORE	ID014_BORE	ID014_BORE	ID014_BORE	ID015_BORE	ID015_BORE	ID015_BORE	ID015_BORE	ID015_BORE	ID016_BORE	ID016_BORE	ID016_BORE
Field ID									ID013_SW01	ID013_SW01	ID013_SW01	ID014_BORE	ID014_BORE	ID014_BORE	ID014_BORE	ID014_BORE	ID014_BORE	ID015_BORE	ID015_BORE	ID015_BORE	ID015_BORE	ID015_BORE	ID016_BORE	ID016_BORE	ID016_BORE
Date									22/01/2020	11/03/2021	26/05/2022	23/01/2020	12/03/2021	26/05/2022	18/05/2023	26/06/2024	**17/11/2025**	23/01/2020	16/03/2021	26/05/2022	17/05/2023	27/06/2024	12/03/2021	26/05/2022	18/05/2023
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2002831	ES2111261	ES2218760-AC	ES2002813	ES2111243	ES2218760-AC	ES2317551	ES2421874	ES2537583	ES2002814	ES2111245	ES2218760-AC	ES2317549	ES2421874	ES2111244	ES2218760-AC	ES2317550
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health																	
(n:2) Fluorotelomer Sulfonic Acids																									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																									
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							0.14	0.14	0.28	0.15	0.12	0.30	0.20	0.20	0.35	0.09	0.04	0.03	<0.02	0.08	<0.02	<0.02	0.05
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							0.03	0.03	0.11	0.04	0.02	0.11	0.08	0.07	0.11	0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	-	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							0.03	0.03	0.07	0.02	0.02	0.07	0.04	0.04	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* #3,7	*220* #3,7			0.2 #4	10 #5	0.07	0.05	0.14	0.05	0.04	0.12	0.08	0.08	0.13	0.02	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids																									
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	-	-	-	-	-	<0.02	-	-	-	-	-	<0.02	-	-	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* #3,7	*0.13* #3,7	1.4	**0.33**	0.008 #4	2 #5,8	***2.78***	***1.38***	***2.99***	***1.93***	***0.89***	***2.79***	***2.37***	***2.02***	***2.90***	***0.46***	*0.15*	*0.17*	*0.03*	*0.18*	<0.01	<0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							0.17	0.18	0.37	0.17	0.14	0.27	0.19	0.18	0.26	0.10	0.05	0.04	<0.02	0.09	0.03	<0.02	0.06
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 #4	2 #5,8	**1.72**	**1.46**	**2.34**	1.20	1.04	**2.43**	**1.36**	**1.25**	**2.20**	0.63	0.30	0.19	0.03	0.48	0.14	0.02	0.29
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							0.14	0.07	0.14	0.08	0.05	0.15	0.09	0.07	0.13	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 #4		0.14	0.17	0.32	0.16	0.15	0.29	0.15	0.19	0.31	0.11	0.06	0.04	<0.02	0.09	0.03	<0.02	0.08
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	-	-	-	-	-	0.08	-	-	-	-	-	0.04	-	-	-
Sum of PFHxS and PFOS	µg/L	0.002						2 #5	4.50	2.84	5.33	3.13	1.93	5.22	3.73	3.27	5.10	1.09	0.45	0.36	0.06	0.66	0.14	0.02	0.29
Perfluoroalkyl Sulfonamides																									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS																									
Sum of PFAS	µg/L	0.002							5.22	3.51	6.76	3.80	2.47	6.53	4.56	4.18	6.57	1.46	0.61	0.47	0.06	1.01	0.20	0.02	0.48

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
• assessing toxicity and bioaccumulation in high conservation value ecosystems
• assessing bioaccumulation in slightly to moderately disturbed ecosystems.
2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Private	Private	Private	Cascade Creek	Cascade Creek	Cascade Creek	Cascade Creek	Cascade Creek	Cascade Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek
Location Code									ID016_BORE	ID016_BORE	ID019_BORE	Cockpit_SW01	Cockpit_SW01	Cockpit_SW01	Cockpit_SW01	Cockpit_SW01	Cockpit_SW01	WWII_DAM	WWII_DAM	WWII_DAM	WWII_DAM	WWII_DAM	WWII_DAM	MC_OMP01
Field ID									ID016_BORE	ID016_BORE	ID019_BORE	Cockpit_SW01	COCKPIT_SW01	COCKPIT_SW01	COCKPIT_SW01	COCKPIT_SW01	COCKPIT_SW01	PWS-WWII_DAM	WW11_DAM	WWII_DAM	WW11_DAM	WWII_DAM	WW11_DAM	MC_SW21
Date									27/06/2024	**17/11/2025**	**20/11/2025**	18/01/2020	17/03/2021	24/05/2022	16/05/2023	24/06/2024	**18/11/2025**	13/01/2020	13/03/2021	25/05/2022	16/05/2023	25/06/2024	**20/11/2025**	13/03/2021
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2421874	ES2537583	ES2537583	ES2002808	ES2111280	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2002626	ES2111280	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111268
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health																
(n:2) Fluorotelomer Sulfonic Acids																								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																								
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	2.68	2.21	1.21	0.71	1.07	0.49	2.05
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.65	0.55	0.34	0.21	0.33	0.12	0.46
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							<0.05	-	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.51	0.75	0.29	0.15	0.24	0.11	0.41
Perfluorobutanoic acid (PFBA)	µg/L	0.01							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.3	0.2	0.1	0.2	<0.1	0.3
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.13	1.25	0.62	0.37	0.52	0.30	0.92
Perfluoroalkane Sulfonic Acids																								
Perfluorononane sulfonate (PFNS)	µg/L	0.02							<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	0.07	-	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	<0.01	<0.01	*0.07*	*0.02*	*0.03*	*0.01*	<0.01	*0.02*	*0.01*	***44.6***	***21.0***	***25.5***	***14.6***	***16.7***	***13.5***	***24.0***
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	2.97	3.00	1.26	0.87	1.40	0.47	2.49
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	0.17	0.09	0.12	0.02	<0.02	0.01	<0.01	0.01	0.01	22.6	13.6	9.53	5.87	7.93	3.87	15.9
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	2.05	1.65	0.78	0.53	<0.02	0.27	1.42
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		0.05	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	2.30	2.42	0.94	0.59	1.07	0.39	1.69
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							<0.02	-	-	-	-	-	-	<0.02	-	-	-	-	-	0.41	-	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	0.17	0.09	0.19	0.04	0.03	0.02	<0.01	0.03	0.02	67.2	34.6	35.0	20.5	24.6	17.4	39.9
Perfluoroalkyl Sulfonamides																								
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS																								
Sum of PFAS	µg/L	0.002							0.29	0.09	0.26	0.04	0.03	0.02	<0.01	0.03	0.02	79.9	46.7	40.7	24.0	29.9	19.7	49.6

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health															
Monitoring Zone									Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek
Location Code									MC_OMP01	MC_OMP01	MC_OMP01	MC_OMP01	MC_OMP02	MC_OMP02	MC_OMP02	MC_OMP02	MC_OMP02	MC_OMP03	MC_OMP03	MC_OMP03	MC_OMP03	MC_OMP03	MC_OMP04	MC_OMP04	MC_OMP04
Field ID									MC_OMP01	MC_DMP01	MC_OMP01	MC_OMP01	MC_SW24	MC_OMP02	MC_OMP02	MC_OMP02	MC_OMP02	MC_SW25	MC_OMP03	MC_OMP03	MC_OMP03	MC_OMP03	MC_SW28	MC_OMP04	MC_OMP04
Date									26/05/2022	16/05/2023	25/06/2024	**19/11/2025**	13/03/2021	26/05/2022	18/05/2023	26/06/2024	**20/11/2025**	13/03/2021	26/05/2022	18/05/2023	26/06/2024	**20/11/2025**	17/03/2021	25/05/2022	17/05/2023
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111268	ES2218760-AC	ES2317554
(n:2) Fluorotelomer Sulfonic Acids																									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																									
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							1.32	0.45	1.22	0.92	0.03	0.06	0.09	0.06	0.07	0.04	0.81	0.69	0.84	0.09	0.70	0.53	0.54
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							0.36	0.13	0.33	0.23	0.03	0.12	0.24	0.13	0.13	0.05	0.25	0.22	0.24	0.13	0.17	0.19	0.23
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	-	<0.05	-	-	-	-	<0.05	-	-	-	-	<0.05	-	-	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							0.29	0.10	0.24	0.18	<0.02	<0.02	0.03	<0.02	0.03	<0.02	0.17	0.16	0.14	0.03	0.11	0.12	0.12
Perfluorobutanoic acid (PFBA)	µg/L	0.01							0.2	<0.1	0.2	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	0.1	0.1	0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	0.68	0.31	0.56	0.47	<0.01	<0.01	0.02	0.01	0.02	<0.01	0.34	0.31	0.29	0.02	0.25	0.22	0.23
Perfluoroalkane Sulfonic Acids																									
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	0.05	-	-	-	-	<0.02	-	-	-	-	0.03	-	-	-	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	***24.8***	***19.1***	***15.9***	***16.3***	*0.03*	*0.05*	*0.10*	*0.08*	*0.05*	*0.05*	***14.0***	***11.4***	***8.65***	*0.33*	***5.52***	***8.14***	***7.37***
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							1.42	0.60	1.49	0.71	0.03	0.04	0.06	0.05	0.04	0.04	0.83	0.73	1.04	0.06	0.56	0.50	0.49
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	10.5	4.73	8.75	6.50	0.14	0.17	0.32	0.24	0.24	0.17	5.84	5.68	5.98	0.37	4.07	3.65	3.78
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							0.75	0.55	<0.02	0.48	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.43	0.39	0.35	<0.02	0.26	0.25	0.25
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		1.15	0.40	1.17	0.84	0.04	0.05	0.07	0.06	0.04	0.04	0.72	0.70	0.84	0.06	0.50	0.47	0.50
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	0.46	-	-	-	-	<0.02	-	-	-	-	0.34	-	-	-	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	35.3	23.8	24.6	22.8	0.17	0.22	0.42	0.32	0.29	0.22	19.8	17.1	14.6	0.70	9.59	11.8	11.2
Perfluoroalkyl Sulfonamides																									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS																									
Sum of PFAS	µg/L	0.002							41.5	26.4	30.4	27.1	0.30	0.49	1.03	0.63	0.62	0.39	23.5	20.4	18.8	1.09	12.2	14.2	13.6

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek
Location Code									MC_OMP04	MC_OMP04a	MC_OMP05	MC_OMP05	MC_OMP05	MC_OMP05	MC_OMP05a	MC_OMP06	MC_OMP06	MC_OMP06	MC_OMP06	MC_OMP06	MC_OMP07	MC_OMP07	MC_OMP07	MC_OMP07a
Field ID									MC_OMP04	MC_OMP04a	MC_SW27	MC_OMP05	MC_OMP05	MC_OMP05	MC_OMP05a	MC_SW26	MC_OMP06	MC_OMP06	MC_OMP06	MC_OMP06	MC_SW11	MC_OMP07	MC_OMP07	MC_OMP07a
Date									26/06/2024	**20/11/2025**	17/03/2021	25/05/2022	17/05/2023	26/06/2024	**20/11/2025**	17/03/2021	25/05/2022	17/05/2023	26/06/2024	**20/11/2025**	13/03/2021	25/05/2022	18/05/2023	26/06/2024	**20/11/2025**
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2421874	ES2537583	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health																	
(n:2) Fluorotelomer Sulfonic Acids																									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																									
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							0.48	0.53	0.64	0.57	0.51	0.54	0.56	0.70	0.58	0.49	0.45	0.55	0.67	0.60	0.49	0.54	0.52
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							0.19	0.17	0.16	0.19	0.21	0.21	0.17	0.17	0.20	0.20	0.16	0.16	0.17	0.20	0.20	0.20	0.18
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							<0.05	-	-	-	-	<0.05	-	-	-	-	<0.05	-	-	-	-	<0.05	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							0.08	0.10	0.11	0.12	0.11	0.10	0.10	0.12	0.12	0.10	0.08	0.10	0.11	0.12	0.10	0.09	0.08
Perfluorobutanoic acid (PFBA)	µg/L	0.01							0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	0.17	0.22	0.24	0.24	0.23	0.18	0.23	0.24	0.24	0.20	0.18	0.22	0.23	0.22	0.21	0.20	0.22
Perfluoroalkane Sulfonic Acids																									
Perfluorononane sulfonate (PFNS)	µg/L	0.02							0.02	-	-	-	-	0.02	-	-	-	-	<0.02	-	-	-	-	0.03	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	***5.45***	***10.7***	***5.85***	***9.64***	***7.53***	***6.12***	***5.77***	***4.23***	***7.98***	***6.23***	***5.10***	***5.09***	***4.01***	***8.39***	***6.50***	***7.62***	***5.38***
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							0.42	0.42	0.53	0.50	0.45	0.51	0.43	0.64	0.56	0.45	0.40	0.41	0.58	0.53	0.43	0.46	0.43
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	2.63	3.18	4.08	3.63	3.54	3.04	3.19	4.82	4.02	3.22	2.56	3.37	4.51	3.72	3.16	3.20	2.96
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							0.17	0.19	0.26	0.26	0.24	0.21	0.17	0.28	0.28	0.22	0.18	0.18	0.24	0.25	0.24	0.26	0.17
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		0.41	0.38	0.60	0.45	0.46	0.45	0.39	0.74	0.49	0.40	0.35	0.39	0.52	0.49	0.43	0.44	0.39
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							0.17	-	-	-	-	0.18	-	-	-	-	0.15	-	-	-	-	0.18	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	8.28	13.9	9.93	13.3	11.1	9.16	8.96	9.05	12.0	9.45	7.66	8.46	8.52	12.1	9.66	10.8	8.34
Perfluoroalkyl Sulfonamides																									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS																									
Sum of PFAS	µg/L	0.002							10.5	16.2	12.6	15.7	13.4	11.7	11.3	12.0	14.6	11.6	9.61	10.7	11.1	14.6	11.9	13.3	10.6

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek	Mission Creek
Location Code									MC_OMP08	MC_OMP08	MC_OMP08	MC_OMP08	MC_OMP09	MC_OMP09	MC_OMP09	MC_OMP09	MC_OMP09	MC_OMP10	MC_OMP10	MC_OMP10	MC_OMP10	MC_OMP10	MC_OMP11	MC_OMP11	MC_OMP11	MC_OMP11
Field ID									MC_SW13	MC_OMP08	MC_OMP08	MC_OMP08	MC_SW04	MC_OMP09	MC_OMP09	MC_OMP09	MC_OMP09	MC_OMP10	MC_OMP10	MC_OMP10	MC_OMP10	MC_OMP10	MC_OMP11	MC_OMP11	MC_OMP11	MC_OMP11
Date									13/03/2021	25/05/2022	18/05/2023	26/06/2024	13/03/2021	25/05/2022	18/05/2023	25/06/2024	**17/11/2025**	25/05/2022	17/05/2023	25/06/2024	**19/11/2025**	25/05/2022	18/05/2023	25/06/2024	**17/11/2025**
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2218760-AC	ES2317554	ES2421874	ES2537583
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health																	
(n:2) Fluorotelomer Sulfonic Acids																									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																									
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							0.52	0.57	0.49	0.51	0.40	0.36	0.39	0.45	0.35	0.49	0.41	0.38	0.31	0.36	0.30	0.26	0.31
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							0.13	0.19	0.20	0.17	0.14	0.12	0.15	0.16	0.10	0.15	0.16	0.13	0.10	0.11	0.11	0.09	0.10
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							0.08	0.11	0.10	0.09	0.02	0.07	0.08	0.08	0.06	0.10	0.09	0.08	0.06	0.08	0.06	0.06	0.06
Perfluorobutanoic acid (PFBA)	µg/L	0.01							0.1	0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	0.15	0.21	0.20	0.18	0.02	0.13	0.16	0.16	0.14	0.18	0.17	0.14	0.14	0.14	0.11	0.12	0.13
Perfluoroalkane Sulfonic Acids																									
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	-	0.03	-	-	-	<0.02	-	-	-	<0.02	-	-	-	<0.02	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	***3.53***	***7.87***	***6.44***	***5.90***	***0.38***	***3.80***	***4.94***	***4.86***	***3.99***	***4.62***	***5.32***	***3.64***	***3.49***	***4.43***	***3.29***	***2.96***	***3.79***
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							0.45	0.47	0.42	0.46	0.27	0.35	0.34	0.44	0.33	0.41	0.38	0.38	0.26	0.33	0.26	0.28	0.30
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	3.48	3.66	3.07	2.91	0.58	2.66	2.45	2.89	2.43	3.00	2.79	2.40	2.04	2.45	1.93	2.15	2.31
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							0.17	0.25	0.23	0.20	0.02	0.16	0.17	0.20	0.14	0.19	0.19	<0.02	0.12	0.15	0.14	0.12	0.12
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		0.48	0.48	0.43	0.43	0.52	0.37	0.36	0.37	0.31	0.42	0.33	0.34	0.24	0.35	0.27	0.28	0.26
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	-	0.17	-	-	-	0.15	-	-	-	0.13	-	-	-	0.11	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	7.01	11.5	9.51	8.81	1.26	6.46	7.39	7.75	6.42	7.62	8.11	6.04	5.53	6.88	5.22	5.11	6.10
Perfluoroalkyl Sulfonamides																									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS																									
Sum of PFAS	µg/L	0.002							9.09	13.9	11.7	11.2	2.75	8.02	9.04	9.76	7.98	9.56	9.84	7.62	6.86	8.40	6.47	6.43	7.49

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Headstone Creek	Headstone Creek	Headstone Creek	Headstone Creek	Headstone Creek	Headstone Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek
Location Code									PWS_HEAD_DAM	PWS_HEAD_DAM	PWS_HEAD_DAM	PWS_HEAD_DAM	PWS_HEAD_DAM	PWS_HEAD_DAM	WC_OMP01	WC_OMP01	WC_OMP01	WC_OMP01	WC_OMP01	WC_OMP02	WC_OMP02	WC_OMP02	WC_OMP02
Field ID									PWS_HEAD_DAM	PWS_HEAD_DAM	PWS_HEAD_DAM	PWS_HEAD_DAM	PWS_HEAD_DAM	PWS_HEAD_DAM	TC_SW06	WC_OMP01	WC_OMP01	WC_OMP01	TC_SW04	WC_OMP02	WC_OMP02	WC_OMP02	WC_OMP02
Date									14/01/2020	16/03/2021	24/05/2022	16/05/2023	25/06/2024	**19/11/2025**	13/03/2021	26/05/2022	17/05/2023	24/06/2024	**17/11/2025**	12/03/2021	26/05/2022	17/05/2023	24/06/2024
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2002626	ES2111280	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2111268	ES2218760-AC	ES2317554	ES2421874
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health															
(n:2) Fluorotelomer Sulfonic Acids																							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																							
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.12	0.08	0.07	0.09	0.12	0.05	0.04	0.02	0.03
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.03	0.03	0.04	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	-	-	-	<0.05	-	-	-	-	<0.05	-	-	-	-	<0.05
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	0.01	0.02	0.02	0.01	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids																							
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	-	-	<0.02	-	-	-	-	<0.02	-	-	-	-	<0.02
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	*0.02*	<0.01	<0.01	<0.01	<0.01	<0.01	*0.29*	*0.21*	*0.18*	*0.29*	*0.28*	*0.15*	*0.08*	*0.08*	*0.08*
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.14	0.10	0.09	0.09	0.10	0.06	0.03	0.03	0.03
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	0.85	0.54	0.49	0.54	0.73	0.40	0.22	0.19	0.16
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	0.09	0.07	0.10	0.11	0.07	0.04	0.03	0.03
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	-	-	<0.02	-	-	-	-	0.03	-	-	-	-	<0.02
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	1.14	0.75	0.67	0.83	1.01	0.55	0.30	0.27	0.24
Perfluoroalkyl Sulfonamides																							
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS																							
Sum of PFAS	µg/L	0.002							0.02	<0.01	<0.01	<0.01	<0.01	<0.01	1.58	1.06	0.94	1.19	1.44	0.74	0.41	0.35	0.33

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek
Location Code									WC_OMP02	WC_OMP03	WC_OMP03	WC_OMP03	WC_OMP03	WC_OMP03	WC_OMP03	WC_OMP04_DUCKDAM	WC_OMP04_DUCKDAM	WC_OMP04_DUCKDAM	WC_OMP04_DUCKDAM
Field ID									WC_OMP02	TC_SW02	TC_SW02	WC_OMP03	WC_OMP03	WC_OMP03	WC_OMP03	PWS_DUCK_DAM	PWS_DUCK_DAM	WC_OMP04_DUCKDAM	WC_OMP04_DUCKDAM
Date									**17/11/2025**	16/01/2020	13/03/2021	26/05/2022	17/05/2023	26/06/2024	**18/11/2025**	14/01/2020	14/03/2021	24/05/2022	16/05/2023	24/06/2024
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2537583	ES2002626	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583	ES2002626	ES2111280	ES2218760-AC	ES2317554	ES2421874
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health											
(n:2) Fluorotelomer Sulfonic Acids																			
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<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	0.005							<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	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids																			
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							0.06	<0.02	0.03	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<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	0.002							<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	0.002							<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	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	-	-	-	-	<0.05	-	-	-	-	<0.05
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							<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	0.01							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<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	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids																			
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	-	-	-	<0.02	-	-	-	-	<0.02
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	*0.12*	*0.03*	*0.07*	*0.07*	*0.06*	*0.06*	*0.05*	*0.03*	*0.02*	*0.03*	*0.05*	*0.03*
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							0.07	<0.02	0.04	0.04	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	0.43	0.06	0.23	0.20	0.15	0.16	0.12	0.09	0.07	0.10	0.07	0.08
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		0.06	<0.02	0.06	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.02
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	-	-	-	<0.02	-	-	-	-	-	<0.02
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	0.55	0.09	0.30	0.27	0.21	0.22	0.17	0.12	0.09	0.13	0.12	0.11
Perfluoroalkyl Sulfonamides																			
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS																			
Sum of PFAS	µg/L	0.002							0.76	0.09	0.43	0.38	0.23	0.30	0.17	0.12	0.09	0.13	0.12	0.13

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 7: Historical Water Analytical Results
PFAS OMP Norfolk Island

Monitoring Zone									Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek	Watermill Creek
Location Code									WC_OMP04_DUCKDAM	WC_OMP05	WC_OMP05	WC_OMP05	WC_OMP05	WC_OMP05
Field ID									WC_OMP04_DUCKDAM	TC_SW07	WC_OMP05	WC_OMP05	WC_OMP05	WC_OMP05
Date									**18/11/2025**	15/03/2021	24/05/2022	16/05/2023	24/06/2024	**18/11/2025**
Sample Type									Normal	Normal	Normal	Normal	Normal	Normal
Lab Report No.									ES2537583	ES2111268	ES2218760-AC	ES2317554	ES2421874	ES2537583
	Unit	EQL	*Aquatic ecosystems DGV - high conservation value (99%) & slightly to moderatley disturbed (95%)- freshwater*	*Aquatic ecosystems DGV - highly disturbed (90%) - freshwater*	Vegetable Irrigation (Senversa, 2021c)	**Stock Watering (Senversa, 2021c)**	Drinking Water - Health	Recreational Water - Health						
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorononanoic acid (PFNA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid (PFPeA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005							-	-	-	-	<0.05	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid (PFBA)	µg/L	0.01							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid (PFDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	µg/L	0.002	*19* [#3,7]	*220* [#3,7]			0.2 [#4]	10 [#5]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroalkane Sulfonic Acids														
Perfluorononane sulfonate (PFNS)	µg/L	0.02							-	-	-	-	<0.02	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	*0.00023* [#3,7]	*0.13* [#3,7]	1.4	**0.33**	0.008 [#4]	2 [#5,8]	*0.04*	<0.01	*0.04*	<0.01	*0.02*	*0.01*
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002			0.8	**1.2**	0.03 [#4]	2 [#5,8]	0.10	<0.02	0.06	0.04	0.02	0.03
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002					1 [#4]		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.02							-	-	-	-	<0.02	-
Sum of PFHxS and PFOS	µg/L	0.002						2 [#5]	0.14	<0.01	0.10	0.04	0.04	0.04
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005							<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
PFAS														
Sum of PFAS	µg/L	0.002							0.14	<0.01	0.10	0.04	0.04	0.04

Comments

#3 PFAS National Environmental Management Plan (HEPA 2020)
#4 NHMRC (2011)
#5 NHMRC (2019) Guidance on PFAS in Recreational Waters
#6 NHMRC (2011) - Health. Multiplied by a factor of x10
#7 For bioaccumulative contaminants, which include many PFAS, the framework specifies that the 99% species protection DGV should be used in:
- assessing toxicity and bioaccumulation in high conservation value ecosystems
- assessing bioaccumulation in slightly to moderately disturbed ecosystems.

2.Similarly, the 95% species protection DGV has been applied to highly disturbed systems.
#8 Where the criteria refer to the sum of PFOS and PFHxS, this means concentrations of PFOS only, PFHxS only, and the sum of the two (HEPA, 2025).

Table 8: Soil and Sediment Analytical Results
DITRDCSA Norfolk PFAS

						Location Code	AIRPORT_TRUCKFILL	BALL_SS3	BALL_SS4	BALL_SS5	ID008_SS2	WC_OMP04_DUCKDAM
						Field ID	A_TRUCKFILL_SS1	BALL_SS3	BALL_SS4	BALL_SS5	ID008_SS2	WC_OMP04_SD
						Date	20/11/2025	21/11/2025	21/11/2025	21/11/2025	20/11/2025	19/11/2025
						Sample Type	Normal	Normal	Normal	Normal	Normal	Normal
						Lab Report No.	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583	ES2537583
	Unit	EQL	Human Health - NEPM Setting 'A' - Residential	*Human Health - NEPM Setting 'C' - Public Open Space*	**Human Health - NEPM Setting 'D' - Commercial / Industrial**	Maintenance of Ecosystems - Commercial / Industrial[#10]						
(n:2) Fluorotelomer Sulfonic Acids												
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005					<0.0005	<0.0005	0.0032	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0005					<0.0005	<0.0005	0.829	1.77	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005					<0.0005	<0.0005	2.28	4.07	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005					<0.0005	<0.0005	0.129	0.549	<0.0005	<0.0005
Perfluoroalkane Carboxylic Acids												
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002					0.0005	0.0004	0.0918	0.0569	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002					<0.0002	0.0004	0.0025	0.0713	0.0005	<0.0002
Perfluorononanoic acid (PFNA)	mg/kg	0.0002					<0.0002	0.0008	0.0361	0.0260	<0.0002	<0.0002
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002					0.0002	0.0002	0.167	0.0541	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005					<0.0005	<0.0005	0.0010	0.0348	<0.0005	<0.0005
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002					<0.0002	0.0004	0.0462	0.0503	<0.0002	<0.0002
Perfluorobutanoic acid (PFBA)	mg/kg	0.001					<0.001	<0.001	0.043	0.011	<0.001	<0.001
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002					<0.0002	<0.0002	0.0182	0.0706	0.0004	<0.0002
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002					<0.0002	<0.0002	0.0005	0.0317	0.0003	<0.0002
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002					<0.0002	0.0003	0.0049	0.0934	0.0004	<0.0002
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	0.06[#1]	*10*[#3]	**50**[#5]	0.003[#7]	0.0012	0.0005	0.0601	0.0680	0.0004	<0.0002
Perfluoroalkane Sulfonic Acids												
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0002	0.003[#2]	*1*[#4]	**20**[#6]	0.003[#9]	0.0841	0.0437	0.0197	0.0084	0.0052	0.0100
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	0.003[#2]	*1*[#4]	**20**[#6]		0.0009	0.0033	0.0028	0.0005	<0.0002	0.0008
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002					<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002					0.0002	0.0159	0.0105	0.0006	<0.0002	<0.0002
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	mg/kg	0.0002	0.003[#2]	*1*[#4]	**20**[#6]		0.0850	0.0470	0.0225	0.0089	0.0052	0.0108
Perfluoroalkyl Sulfonamides												
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002					<0.0002	<0.0002	0.0015	<0.0002	<0.0002	<0.0002
PFAS												
Sum of PFAS	mg/kg	0.0002					0.0877	0.0762	3.75	6.97	0.0072	0.0108

Comments

#1 PFAS NEMP 3.0: Health, Residential with garden/accessible soil (HIL A)
#2 PFAS NEMP 3.0: Health, Residential with garden/accessible soil (HIL A). Value is for PFOS+PFHxS
#3 PFAS NEMP 3.0: Health, Public open space (HIL C)
#4 PFAS NEMP 3.0: Health, Public open space (HIL C). Value is for PFOS+PFHxS
#5 PFAS NEMP 3.0: Health, Industrial/commercial (HIL D)
#6 PFAS NEMP 3.0: Health, Industrial/commercial (HIL D). Value is for PFOS+PFHxS
#7 PFAS NEMP 3.0: Ecological, indirect exposure. Also consider guideline values for direct exposure (0.005 mg/kg with reptiles, 10 mg/kg without reptiles).
#8 PFAS NEMP 3.0: Ecological, indirect exposure. Also consider guideline value for direct exposure (1 mg/kg).
#9 PFAS NEMP 3.0: Ecological, indirect exposure. For intensely developed sites with no secondary consumers and minimal indirect exposure, up to 0.14 mg/kg may be adopted. Also consider guideline value for direct exposure (1 mg/kg).
#10 PFAS NEMP 3.0: applicable to areas of ecological significance, urban residential / public open space, and commercial / industrial site uses.

Table 9: Biota Analytical Results
DITRDCSA Norfolk PFAS

Location Code					ID008_BIOTA1	ID008_BIOTA2	ID008_BIOTA3	ID008_BIOTA4	WC_OMP04_DUCKDAM
Field ID					ID008_BIOTA1	ID008_BIOTA2	ID008_BIOTA3	ID008_BIOTA4	WC_BIOTA1
Date					20/11/2025	20/11/2025	20/11/2025	20/11/2025	19/11/2025
Sample Type					Normal	Normal	Normal	Normal	Normal
Location Description					ID008	ID008	ID008	ID008	Duck Dam
Sample Comments					Zuccini	Tomato	Silverbeet	Parsley	Water Hyacinth
Lab Report No.					ES2537238	ES2537238	ES2537238	ES2537238	ES2537238
	Unit	EQL	Food for Human Consumption - Fruits (all)	**Food for Human Consumption - Vegetables (all)**					
Physical Parameters									
Weight of Sample Prepared	g	0.1			2.1	0.9	2.0	3.6	2.9
(n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0001			<0.002	<0.002	<0.002	<0.002	<0.002
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0001			<0.002	<0.002	<0.002	<0.002	<0.002
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0002			<0.002	<0.002	<0.002	<0.002	<0.002
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0002			<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroalkane Carboxylic Acids									
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0001			0.002	<0.001	<0.001	0.003	<0.001
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0005			<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	mg/kg	0.0001			<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002			<0.002	<0.002	<0.002	0.021	<0.002
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.002			<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0001			0.001	<0.001	<0.001	<0.001	<0.001
Perfluorobutanoic acid (PFBA)	mg/kg	0.0002			<0.005	<0.005	<0.005	0.012	<0.005
Perfluorodecanoic acid (PFDA)	mg/kg	0.0005			<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0005			<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0005			<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorooctanoic acid (PFOA)	mg/kg	0.0001	0.0051[#1]	**0.0088[#1]**	0.003	<0.001	<0.001	<0.001	<0.001
Perfluoroalkane Sulfonic Acids									
Perfluorononane sulfonate (PFNS)	mg/kg	0.001			<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0001	0.001[#2]	**0.0011[#1]**	<0.001	0.001	<0.001	<0.001	0.001
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0001			<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0001			<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0001			<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002			<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0001			<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropropanesulfonic acid (PFPrS)	mg/kg	0.002			<0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	mg/kg	0.0001	0.001[#2]	**0.0011[#1]**	<0.001	0.001	<0.001	<0.001	0.001
Perfluoroalkyl Sulfonamides									
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.002			<0.002	<0.002	<0.002	<0.002	<0.002
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.0002			<0.001	<0.001	<0.001	<0.001	<0.001
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.0002			<0.001	<0.001	<0.001	<0.001	<0.001
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.001			<0.002	<0.002	<0.002	<0.002	<0.002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.001			<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.001			<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.001			<0.005	<0.005	<0.005	<0.005	<0.005
PFAS									
Perfluorooctane sulfonic acid (PFOS) - Branched	mg/kg	0.001			<0.001	<0.001	<0.001	<0.001	0.001
Perfluorooctane sulfonic acid (PFOS) - Linear	mg/kg	0.001			<0.001	0.001	<0.001	<0.001	<0.001
Sum of US EPA PFAS (PFOS + PFOA)	mg/kg	0.0001			-	-	-	-	-
Sum of PFAS	mg/kg	0.0001			0.006	0.001	<0.001	0.036	0.001

Comments
#1 FSANZ (2017) trigger points for investigation
#2 FSANZ (2017) LOR has been adopted as trigger point - LOR is to be adopted where LOR is higher than the trigger value in accordance with FSANZ
#3 Sum of PFHxS and PFOS calculated using 0.5x LOR for non-detects (calculated by Senversa as not reported by laboratory)

Appendix A: SAQP

senversa

PFAS Sampling and Analysis Quality Plan – Year 1 Ongoing Monitoring

Norfolk Island Airport

3 May 2022

Document Information

PFAS Sampling and Analysis Quality Plan – Year 1 Ongoing Monitoring, Norfolk Island Airport

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0	3 May 2022	Michelle Agnew	Christopher Sandiford	Christopher Sandiford	Draft for review

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Senversa acknowledges the traditional custodians of the land on which this work was created and pay our respect to Elders past and present.

Contents

Tables in Text

Appendices

Glossary and Acronyms

Acronym	Definition
ADWG	Australian Drinking Water Guidelines
AFFF	Aqueous Film Forming Foam
ALS	ALS Environmental Ltd
AS	Australian Standard
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Governments
BoM	Bureau of Meteorology
CoC	Chain of Custody
CSM	Conceptual Site Model
DQO	Data Quality Objective
DO	Dissolved Oxygen
DoH	Australian Government Department of Health
DSI	Detailed Site Investigation
EPA	Environment Protection Authority
EC	Electrical Conductivity
GME	Groundwater Monitoring Event
HBGV	Health Based Guidance Value
HEPA	Heads of EPA
HHERA	Human Health and Ecological Risk Assessment
HHSV	Human Health Screening Values

Acronym	Definition
HSEP	Health, Safety and Environment Management Plan
ID	Identification
LOR	Limit of Reporting
LTV	Lower Threshold Value
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NRMMC	Natural Resource Management Ministerial Council
OMP	Ongoing Monitoring Plan
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PFHxS	Perfluorohexane Sulfonic Acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PS	PFAS Source Zone
PSI	Preliminary Site Investigation
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percentage Difference

Acronym	Definition
SAQP	Sampling and Analysis Quality Plan
SPR	Source Pathway Receptor
SWL	Standing Water Level
SWMS	Safe Work Method Statement
TAT	Turnaround Time
TOC	Total Organic Carbon
USEPA	United States Environmental Protection Agency
UTV	Upper Threshold Value
WHO	World Health Organisation

Unit of Measurement	Definition
L	Litres
Ha	Hectares
m AHD	Metres Australian Height Datum
m	Metres
mm	Millimetres
mV	Millivolts
km	Kilometres
m bgl	Metres below ground level
mg/L	Milligrams per litre
µg/L	Micrograms per litre
mg/kg	Milligrams per kilogram

1.0 Introduction and Objectives

Senversa has been engaged to undertake an investigation of the nature and extent of perfluoroalkyl and polyfluoroalkyl substances (PFAS) at the Norfolk Island Airport (the site) and surrounding land. The site location and layout is shown in **Figure A1**.

In January 2020 Senversa commenced the Preliminary Site Investigation (PSI) which found that legacy aqueous film-forming foam (AFFF) containing PFAS was used on Norfolk Island from the early 1980s until 2015 to supress liquid fuel fires and for fire training activities. These findings were confirmed in further sampling undertaken as a part of the Detailed Site Investigation (DSI) completed in October 2021, with potentially unacceptable risks identified in the DSI quantitatively assessed within the Human Health and Ecological Risk Assessment (HHERA) also completed in October 2021.

To manage some uses of water, Senversa prepared a PFAS Management Plan detailing the strategy for managing risks associated with PFAS impacts on the airport and across the island. This strategy includes an Ongoing PFAS Monitoring Plan (OMP). To guide the field works proposed to be undertaken during completion of the OMP Year 1 Sampling Event, Senversa has prepared this Sampling and Analysis Quality Plan (SAQP).

1.1 Objectives

1.1.1 OMP Objectives

The overall objective of the OMP is to establish the ongoing monitoring actions which are required to assess:

- Trends in PFAS concentrations in the environment.
- The effectiveness of the selected management options in managing current risks.
- Whether changing conditions exist which may result in changes in the risk profile (and therefore changes to the required management actions).

Information from the monitoring program will be used on an ongoing basis to identify whether the currently selected management action should change. Future changes to the management actions could be:

- **Additional** required actions (for instance where additional water uses are identified, or if PFAS concentrations in the environment increase).
- **Reduced** required actions (for instance where lower PFAS concentrations in the environment mean that previously established management actions are no longer necessary to manage risks).

1.1.2 SAQP Objectives

The objective of this SAQP is to detail the data collection tasks required to complete the proposed Year 1 Monitoring Event including the following:

- Describe the current understanding of the nature and extent of PFAS contamination at the site, based on sampling tasks completed on-site.
- Describe the rationale and data quality objectives for the proposed sampling program.
- Specify the proposed investigation locations and strategy.
- Outline the field methodologies for sample collection.
- Specify key analytical considerations.
- Specify the quality assurance and quality control (QA/QC) program.
- Identify assessment criteria.

2.0 Background

2.1 Key Site Information

The following summary of general information for the site and surrounds is considered relevant to the development of this SAQP.

Table 2-1 Key Site Information Summary

Site Element	Relevant Information from Previous Investigations
Location and Size	Norfolk Island is situated in the Pacific Ocean, approximately 1,676 kilometres (km) from Sydney. The site is located in the south-western portion of Norfolk Island. The site occupies approximately 120 hectares (ha). See **Figure 1** for an overview of the site location and layout.
Land Uses	On-site The site is the Norfolk Island International Airport which comprises two runways and associated terminal buildings and carparks. The first runway of the airport was constructed on 25 December 1942 with the assistance of the United States Air Force to assist with war efforts. The airport contains 120 ha of land with 95 ha used for aviation purposes. Off-site The site is surrounded by rural properties and vegetated land to the north, south and west with the township of Burnt Pine to the north-east.
Geology and Soil Conditions	The site area is relatively flat with an elevation of 113 metres (m) above sea level. Soils are predominately derived from weathered Tertiary aged basaltic lava and tuff across the centre of the island, with Quaternary Aged alluvium and calcarenite present around much of the perimeter of the site extending inward from the coast for between 100 m and 500 m.
Hydrogeology	An upper aquifer is located across Norfolk Island in the base of porous alluvium and weathered basaltic rock. The groundwater moves towards sea level through a complex network of fractures and other interconnecting features in the volcanic bedrock (R.S Abell & A.C. Falkland, 1991). Groundwater is generally good quality and is suitable for domestic use. Groundwater type is classified as sodium chloride type with deuterium/oxygen correlation indicating direct groundwater infiltration. More than 450 bores (R.S Abell & A.C. Falkland, 1991) are known to be on the island.

2.2 Regulatory Framework

For the purposes of this investigation the following federal guidance has been adopted:

- National Environment Protection (Assessment of Site Contamination) Amendment Measure (NEPM), National Environmental Protection Council (NEPC) (2013).
- PFAS National Environmental Management Plan (NEMP) 2.0, Heads of EPAs (HEPA) Australia and New Zealand (2020).
- Health Based Guidance Values for PFAS For Use in Site Investigations in Australia. Australian Government Department of Health (DoH) (2017).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Australian and New Zealand Governments (ANZG) (2018).

Senversa will adopt a QA/QC approach that is based on guidance from the following sources:

- Australian Standard (AS) 4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds.
- Schedule B (3) Guideline on Laboratory Analysis of Potentially Contaminated Soils, NEPM.
- United States Environmental Protection Agency (USEPA)- Guidance on Systematic Planning Using the Data Quality Objectives Process EPA QA/G-4.
- USEPA - Guidance on Environmental Data Verification and Data Validation EPA QA/G-8.

3.0 Identified PFAS Impacts

3.1 Norfolk Island Airport Description

Norfolk Island airport is an international airport with access to the airside portion of the airport strictly managed. Other uses of the site include the following:

- Fire Station.
- Bureau of Meteorology (BoM) weather station.
- Council offices.
- Freight forwarding office.
- Former drill ground.
- Waste depot.
- Wastewater treatment plant.

Low level concentrations of PFAS are present across all areas the airport, however concentrations of PFOS and perfluorohexane sulfonate (PFOS+PFHxS) appear to be highest at Source Area 4 (Current Drill Ground). This is where Legacy AFFF was used most recently for training in 2015 as shown on **Figure 3-1** below.

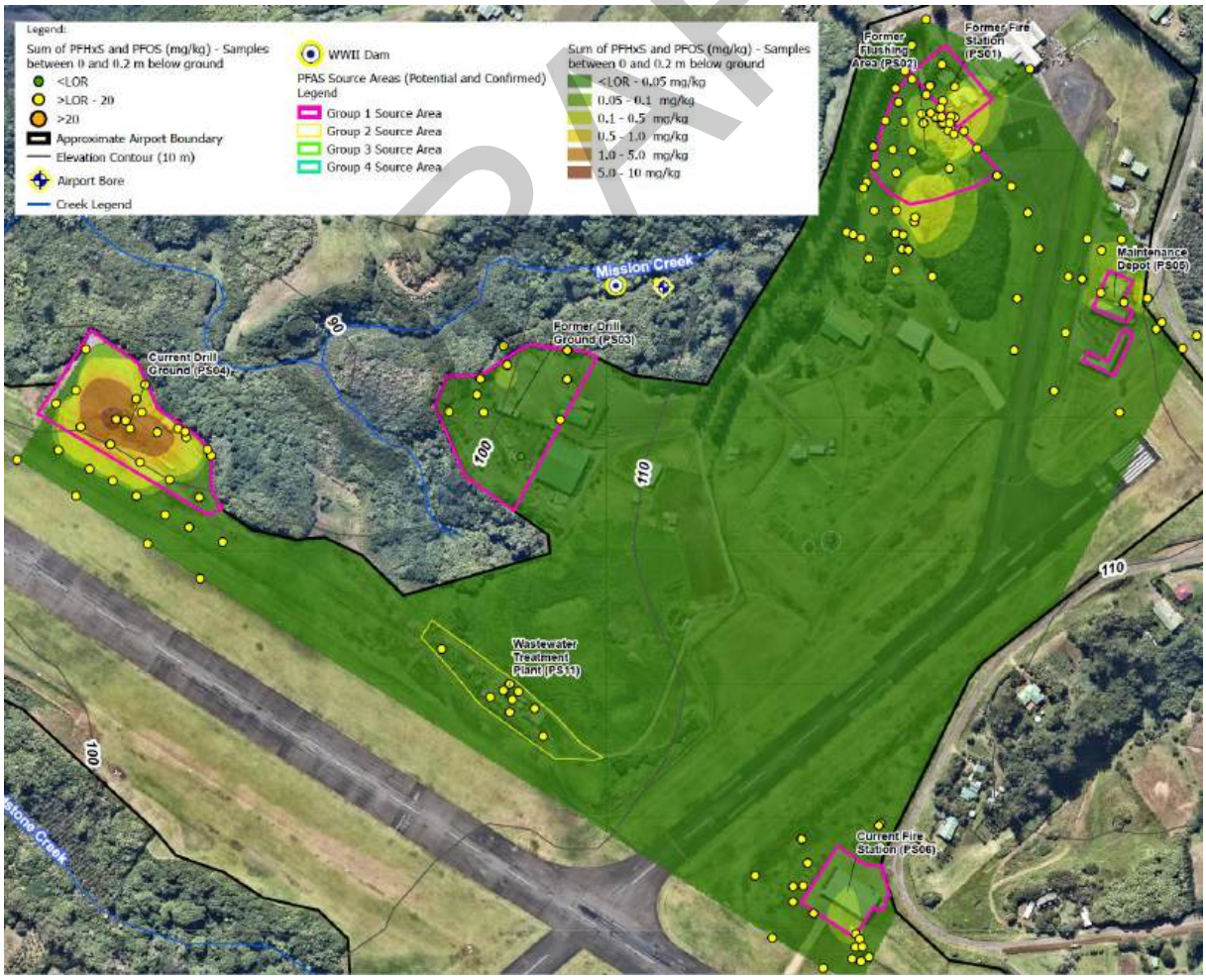

Figure 3-1: Surficial Soil Concentrations of PFOS+PFHxS

3.2 PFAS Impacted Surface Water Catchments

Surface water catchments outside of the airport with PFAS present that require management are Mission Creek and to a lesser degree in Watermill Creek Catchment.

3.2.1 Mission Creek Surface Water Catchment

Surface water samples from the Mission Creek catchment showed the highest concentrations at locations closest to PFAS source zones (PS) PS01 and PS02 at the airport (World War II Dam and MC_SW21). The pathway of PFAS from PS01 and PS02 into Mission Creek is considered to be both groundwater from source zones and surface water run off over PFAS-impacted soils on the airport through drainage lines, which is supported by the concentration in sediment sample MC_SD20.

PFAS concentrations consistently decreased further at each downstream location within Mission Creek (i.e., concentrations decreased with distance away from airport), with the exception of MC_SW25, which reported low levels of PFAS. The decrease in concentrations is shown in **Figure 3-2** below.

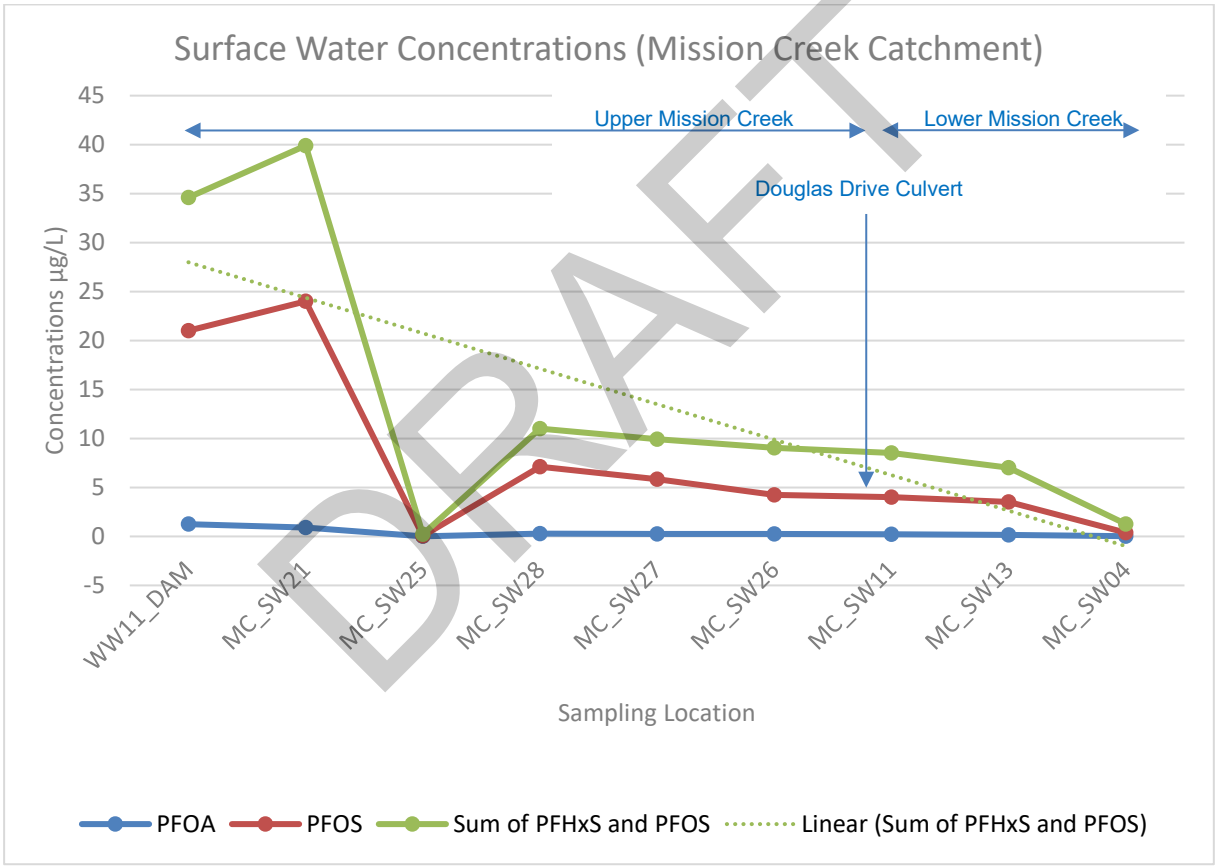

Figure 3-2: Surface Water PFAS Concentrations in Mission Creek

One surface water sample (MC_SW24) was collected from the upper Mission Creek catchment west of the waste depot (source zone PS03) on a separate Mission Creek tributary branch showed significantly lower PFAS concentrations than the tributary downgradient of PS01 and PS02.

A significant drop in PFAS concentrations was reported in MC_SW25, which is just after the confluence of two tributaries in the upper Mission Creek. There was limited evidence of surface water being further impacted down-gradient of PS04 with Mission Creek, adjacent to where Mission Creek sample MC_SW25 was collected.

It is noted MC_SW25 would be expected to receive run off from PS04 but may not receive flows from both tributaries of Mission Creek after the confluence at the exact sampling point. This is due to the creek bed being large and wide (creek bed and low-lying areas covered in substantial reed beds with moisture noted across most of the low-lying area). Additionally, the surface water sample (MC_SW25) may represent the water coming from upstream, rather than from PS04.

This indicates the highest PFAS impacts are likely to be from the northern tributary and hence from airport sources in the northern portion of the airport (PS01 and PS02).

3.2.2 Watermill Creek Catchment

Within the Watermill / Town Creek catchment, the highest PFAS concentration in surface water (TC_SW06 – PFOS+PFHxS: 1.14 micro grams per litre [µg/L]) was identified downstream of the Maintenance Depot (PS05). PFAS concentrations consistently decreased further at each downstream location before being below detection limits at the point of discharge into Emily Bay. The decrease in concentrations is shown in **Figure 3-2** below.

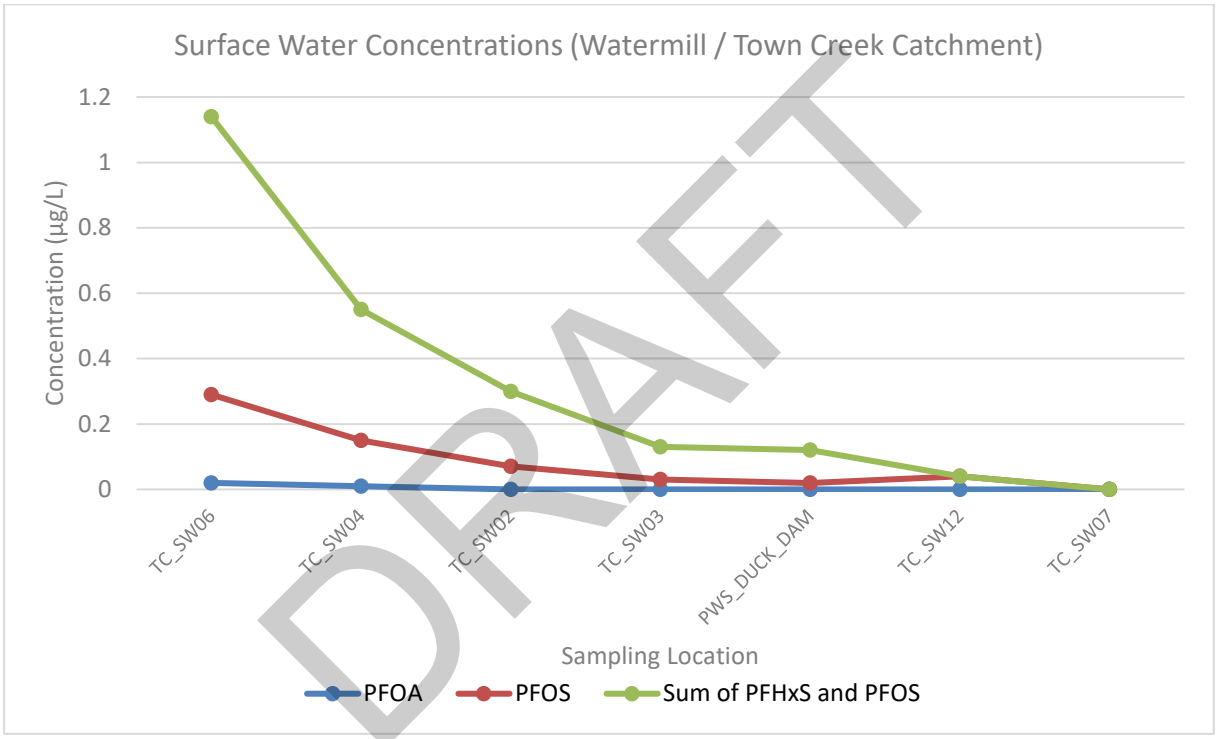

Figure 3-3: Surface Water PFAS Concentrations in Watermill / Town Creek Catchment

Two surface water samples (TC_SW05 and TC_SW13) were collected in the upper reaches of Watermill / Town Creek Catchment but were from different tributaries. TC_SW05 was below adopted criteria (95% levels for this catchment) and was collected on a different tributary to TC_SW06; location is in close proximity to the airport boundary, however it is not downgradient from any identified source zones. TC_SW13 was also collected from a separate upper reach away from the airport (circa 900 m from airport boundary) but is downgradient of source zone PS14 (perfumery). Concentrations of PFAS in TC_SW13 were above criteria, indicating PS14 is a potential source of PFAS

4.0 Investigation Strategy

4.1 Monitoring of surface water and sediment in creeks

4.1.1 Scope and rationale

More data is required to understand the range in concentrations in different creeks over time. Additionally, management actions on the airport may result in a decreasing trend in concentrations in creeks over time. In order to assess trends in PFAS concentrations in creeks on island, ongoing monitoring will be completed in a number of creeks, with the focus on Mission Creek and Watermill Creek which both receive run-off from the airport.

- The highest concentrations have been identified in Mission Creek and multiple sample locations are selected along Mission Creek in order to provide an ongoing understanding of the level and extent of PFAS impacts, and also to help assess which on-airport sources are contributing to the PFAS in Mission Creek. In the lower catchment of Mission Creek (i.e., further downstream) only sediment samples have been collected to-date as water was not present during sampling.
- Concentrations in Watermill Creek are much lower than in Mission Creek and decrease along the length of Watermill Creek (with the highest concentrations measured in the upper part of the catchment). Downstream of Watermill Dam (Duck Dam), concentrations are below the health-based guidance value (HBGV) for drinking water. Ongoing monitoring is required to confirm the extent of impacts within Watermill Creek over time.
- Samples will also be collected from Cascade Creek and Headstone Creek. Low concentrations (below the HBGV for drinking water) have been measured in these creeks to-date. Ongoing monitoring is required to assess changing conditions.

Where practicable, monitoring should be scheduled for times when water is likely to be present (i.e., after periods of rainfall and not in drought conditions). On the first round of monitoring, paired surface water / sediment samples should be collected as only one round of monitoring data is currently available in most locations. On subsequent monitoring rounds, surface water will be collected from all locations if present. If surface water is absent, a sediment sample will be collected instead.

4.1.2 Sampling locations and frequency

The sample locations are depicted on **Figure A1** and summarised below.

Table 4-1: OMP Creek sampling locations

Location	Number of locations	Sample IDs	Notes	Frequency of sampling; sampling media
Mission Creek	12	WWII_DAM, MC_OMP01 – MC_OMP11	MC_OMP08 represents creek water within a paddock accessible to cattle prior to management (see also **Section 4.3** for discussion of monitoring of managed stock water). MC_OMP10 targets Mission Pool where water has not been present on previous sampling rounds; if water is present anywhere within Mission Pool, it should be sampled.	**Annual** First round: surface water and sediment Subsequent rounds: water only, or sediment if water is absent
Watermill Creek	5	WC_OMP01 – WC_OMP05		
Cascade Creek	1	COCKPIT_SW01		
Headstone Creek	1	PWS_HEAD_DAM		

4.2 Monitoring of water utilised for irrigation

4.2.1 Scope and rationale

There are two properties in the Mission Creek catchment which use water from Mission Creek for produce irrigation. The risks associated with this have been assessed to be low and acceptable based on current data. Ongoing monitoring is required to assess if the risk profile might change.

4.2.2 Sampling locations and frequency

The sample locations are depicted on **Figure A1** and summarised below:

Table 4-2: Mission Creek irrigation water sampling locations

Location	Number of locations	Sample IDs	Frequency of sampling; sampling media
Mission Creek	2	ID013_SW01 ID016_BORE	**Annual -** Point of use water sampling

4.3 Monitoring of water for which stock watering use is currently managed

4.3.1 Scope and rationale

There are three properties in the Mission Creek catchment where cattle previously had access to water from Mission Creek for stock watering. There was one property where water from Mission Creek was used for chicken drinking water. The PFAS Management Plan recommends that these uses are managed going forward. Monitoring of these water sources is required to assess trends in concentrations. If concentrations decrease, management may be no longer required.

4.3.2 Sampling locations and frequency

The sample locations are depicted on **Figure A1** and summarised below:

Table 4-3: Managed stock water sampling locations (Mission Creek)

Location	Previous use (prior to management)	Number of locations	Sample IDs	Notes	Frequency of sampling; sampling media
Mission Creek	Cattle stock watering	4	ID014_BORE	HHERA Property A	**Annual** Point of use water sampling
			ID015_BORE	HHERA Property B	
			MC_OMP08	MC_OMP08 represents creek water within a paddock accessible to cattle prior to management (HHERA Property C). See also **Section 4.1** for discussion of creek monitoring.	
			MC_OMP10	MC_OMP10 represents Mission Pool, which was accessible to cattle prior to management although water has not been identified in the monitoring undertaken by Senversa. See also **Section 4.1** for discussion of creek monitoring.	
	Chicken drinking water	1	ID013_SW01	This water is also used for irrigation (see **Section 4.2**)	

4.4 Monitoring of Airport Bore and facility water supplies

4.4.1 Scope and rationale

There are a number of water supplies in public facilities which were previously used for drinking water / domestic use, but where PFAS impacts above the HBGV for drinking water are currently present. These uses are currently managed (e.g., through the provision of alternate water supplies).

Monitoring of these water supplies is required to assess trends in concentrations. If concentrations decrease, management of water use may be no longer required. It is noted that new reticulated supplies are planned for some facilities at the airport including the new fire station.

4.4.2 Sampling locations and frequency

Table 4-4: Managed public water supply sampling locations

Location	Number of locations	Sample IDs	Notes	Frequency of sampling; sampling media
On-airport	5	AIRPORT_BORE		**Annual** Point of use water sampling
		FRE_TAP1	Fire station kitchen; new rainwater tanks recently installed	
		FRE_TAP2	Fire hydrant (used for fire testing). New water supply is being put in place. Testing to be superseded with new supply for fire testing after switchover	
		A_TAP1	Airport terminal female toilets	
		A_TAP4	Mech/maintenance shed adjacent airport terminal and gate 1	
Off-airport: Works depot	4	DEPOT_TAP, DEPOT_TANK1, DEPOT_TANK2, DEPOT_TANK3		

4.5 Summary of samples to be collected

All non-private sample locations to be targeted in the ongoing monitoring program are depicted on **Figure A1**.

Table 4-5: OMP sampling location summary

Sample purpose	Location	Number of locations	Sample IDs	Frequency of sampling; sampling media
Creek sampling	Mission Creek	12	WWII_DAM, MC_OMP01 to MC_OMP11	**Annual** First round: surface water and sediment
	Watermill Creek	5	WC_OMP01 to WC_OMP05	
	Cascade Creek	1	COCKPIT_SW01	

Sample purpose	Location	Number of locations	Sample IDs	Frequency of sampling; sampling media
	Headstone Creek	1	PWS_HEAD_DAM	Subsequent rounds: water only, or sediment if water is absent
Irrigation water	Mission Creek	2	ID013_SW01 ID016_BORE	**Annual** Point of use water sampling
Managed stock water	Mission Creek	2*	ID014_BORE ID015_BORE *(MC_OMP08*)* *(MC_OMP10*)* *(ID013_SW01*)*	
Managed water supplies	On-airport	5	AIRPORT_BORE FRE_TAP1 FRE_TAP2 A_TAP1 A_TAP4	
	Off-airport	4	DEPOT_TAP DEPOT_TANK1 DEPOT_TANK2 DEPOT_TANK3	
Total		**32**		

Notes: * There are 5 samples relevant for managed stock watering, however only two unique samples (ID014_BORE and ID015_BORE, used for cattle watering) not also collected for another purpose. MC_OMP08 and MC_OMP10 (creek locations with possible cattle access in the absence of management) are included in the total sample numbers for creek sampling and ID013_SW01 (used for chicken watering) is included in the total sample numbers for irrigation water sampling

4.6 DQOs

The data quality objective (DQO) process is a systematic planning approach outlined in the NEPM (2013) that is used to define the purpose of the investigation to be undertaken and the type, quantity and quality of data needed to inform decisions relating to the assessment of site contamination. Proposed DQOs for the ongoing monitoring are outlined in the table below.

Table 4-6: DQO Summary

DQO Seven-step Process
1. State the problem. Elevated concentrations of PFAS have been reported in the Airport Bore (groundwater at and adjacent to the airport) and in water supplies at a number of public facilities which were historically supplied with water from the airport bore. The risks associated with these concentrations are currently managed (i.e., groundwater is not currently used for drinking). In addition, PFAS has been identified in creeks which collect run-off from the airport, with the highest concentrations identified in Mission Creek. These elevated concentrations are not considered to pose a significant risk to human health from recreational direct contact, however they are contributing to a potentially elevated risk for ecosystem receptors. In addition, potentially elevated exposures have not been excluded for cattle product or chicken egg consumption where livestock have access to Mission Creek water for drinking. Management of livestock access to water from Mission Creek catchment (surface water and/or groundwater) is therefore currently required. Risks have been assessed to be low and acceptable for livestock drinking water from other creeks.

DQO Seven-step Process

Risks from produce consumption are assessed to be low and acceptable based on the current concentrations measured at properties within the Mission Creek catchment where water is used for produce irrigation. Risks are also assessed to be low and acceptable where water from other creeks is used for produce irrigation.

Further, the concentration trends in surface water, sediment and groundwater are not well understood based on the available monitoring data.

2. Identify the decision/goal of the study.

The goal is to monitor the nature and extent of PFAS impacts and identify trends and changes to PFAS impacts in the environment on and off-site that may alter the understanding or assessment of identified risks into the future.

3. Identify the information inputs.

The primary inputs are considered to be PFAS concentrations in groundwater, surface water and sediment.

4. Define the boundaries of the study.

Ongoing monitoring will be undertaken at a selected number of surface water locations and point of use water supplies at and surrounding the site.

5. Develop the analytical approach/decision rules.

The data will be used in the to assess whether site-derived PFAS has changed in nature and extent which may alter the understanding or assessment of identified risks into the future to human or ecological receptors.

The useability of the data will be assessed in terms of accuracy and reliability in forming conclusions on the concentrations within the samples collected, based on guidance from the relevant sources listed above. The data quality objectives, measures and acceptance criteria to be adopted for monitoring should be outlined in the SAQP to be developed for each monitoring round.

It is required that, as a minimum, the following type and frequency of quality control samples be collected.

Field duplicates (intra laboratory and inter laboratory) samples at a rate of at least 1 in 10 separately groundwater and surface water.

Rinsate blanks where equipment decontamination will be necessary (e.g., groundwater sampling) at a rate of one per day per set of equipment.

As part of the reporting, the results of the monitoring should be used to assess trends using an appropriate statistical approach such as Mann-Kendall methods, or similar, to identify increases, declines or stabilisation of concentrations across monitoring rounds to a specified statistical confidence limit based on the amount of data collected over time.

Some examples of the decisions to be made from investigation results include:

If detections of PFAS are reported in field blanks or rinsate blanks, then consider if there is a potential for cross contamination between sample locations and what impact this has on conclusions of trends.

If reported PFAS concentrations in relevant sample locations increase above the defined upper threshold values (UTVs) defined in the OMP (and/or an increasing trend is identified), then consider further risk assessment to assess whether additional management measures are required.

If reported PFAS concentrations in relevant sample locations decrease below the lower threshold values (LTVs) defined in the OMP (and/or a decreasing trend is identified), then consider further risk assessment to assess whether management measures can be reduced.

6. Specify performance or acceptance criteria.

Adopted screening criteria, LTVs and UTVs defined in the OMP will be used to provide a screening level of results obtained during sampling and asses if risk revision is required.

A data validation checklist with specific acceptance criteria and discussion of results must be documented and reviewed as part of the SAQP development.

At the end of the initial monitoring period, reporting should assess trends in concentrations. This should include development and use of a statistical based decision criteria to assess the significance of trends. Where significant trends are identified, the requirement for further monitoring, assessment and/or management (in the case of an increasing trend) or cessation of monitoring (in the case of a decreasing trend) will be assessed.

7. Develop the plan for obtaining data.

The overarching scope and methodology is provided in this OMP. Prior to each sampling event, a SAQP should be developed which assesses the appropriateness of sample locations, sampling methodologies and risk screening/assessment criteria. The SAQP is to outline the optimum manner to collect the data required to meet the objectives for the assessment and which will meet the project DQOs.

Permission to access sampling locations on public and private properties is to be confirmed prior to sampling.

4.7 Health, Safety and Environment Management

A Health, Safety and Environment Management Plan (HSEP) will be prepared for the investigation to outline how safety and the environment will be managed during field investigations. This will include site specific risk assessment, safe work method statements (SWMS) and waste management plan.

- All Senversa staff involved in the site works will be inducted to the HSEP.
- Senversa personnel will have sufficient information, instruction, training and competency to safely undertake work at the site. Minimum training requirements for personnel will be listed in the HSEP and should be reviewed for all field work.
- Senversa will complete necessary inductions (to be confirmed on arrival on Island) and comply with Norfolk Island Airport site rules and regulations whilst on the site.

4.8 Sampling and Investigation Methodology

The following section describes the methodology to be adopted by field personnel in the conduct of the surface water, sediment, groundwater, soil and biota sampling.

4.8.1 Specific Sampling Requirements

The table below summarises the specific methodology and investigation techniques to be adopted for the various proposed sampling tasks.

Table 4-7: Summary of Specific Sampling Requirements

Sample Type	Detail
Surface Water	• Surface water samples will be collected either directly into the sampling containers or using a hand-held sampling device (e.g., Swing Sampler) with subsequent decanting into the laboratory sampling containers. • Surface water samples will be collected prior to sediment to minimise disturbance and avoid excess sediment load in the water sample. • Direct surface water sampling methods that are used will depend on location access. Sampling of deeper drains may have health and safety risks associated with access, and an appropriate sampling method for that location will be reviewed and applied. • Water quality parameters (pH, redox, dissolved oxygen, electrical conductivity, and temperature) will be recorded at each sample location using a calibrated water quality meter. Sample locations will be selected on island prior to works based on location and safe access requirements.
Sediment	Sediment samples will be collected using a gloved hand with the aid of a small hand trowel/shovel and transferred into sample jars using disposable nitrile gloves. • Sediment samples will be collected from the base of the waterbody (i.e., 0 - 0.05 m below the top of the sediment layer) beneath any surface water (if present). • Sampling of potentially deeper waterbodies may have health and safety risks associated with access, and an appropriate sampling method for that location will likely utilise hand tools such as shovels or trowels. • Access to the exact location indicated for sampling may be dependent on ground cover, the angle of any banks, etc. Therefore, the location where samples are collected may vary. • Where grass, reeds or vegetation growth covers the sediment, this material will be moved aside using hand tools, with the sediment sample collected from directly underneath the vegetation layer. • Any tools used (trowel/shovel) will be decontaminated prior to use.

Sample Type	Detail
Groundwater (point of use water) Sampling	• The outlet to be sampled is to be determined as the first extraction discharge point within the water supply infrastructure (i.e., closed tap to the extraction well discharge). • The outlet / tap will be turned on to flush it of water for approximately 30 seconds by using a smooth flowing water stream at moderate pressure. • Where a line to be sampled supplied both hot and cold water, only the cold water will be sampled. • If a tap is not available, a disposable bailer will be placed inside the bore to collect the sample. • Samples will be placed directly into laboratory supplied bottles. • Water quality parameters (pH, redox, dissolved oxygen, electrical conductivity, and temperature) will be recorded at each sample location using a calibrated water quality meter.

4.8.2 General Sampling Requirements

The following table details general sampling techniques associated with the site works.

Table 4-8: General Sampling Requirements

Activity	Description and Further Information
Field Parameter Measurement	Field water quality parameters will be measured using a water quality meter prior to sampling for all surface water and bore water sampling. The parameters include pH, electrical conductivity, dissolved oxygen, oxidation reduction potential (redox) and temperature. For soil and sediment sampling, field observations will be noted of characteristics such as colour, particle size, odour, discoloration, presence of unusual materials such as waste, etc.
Photographs	A photograph of the sampling location will be taken at each sampling location for record.
Location Survey	All sample locations will be logged using the ArcGIS "Collector" application to enable the location of each sample to be uploaded each evening once connected to the internet.
Sample Handling and Preservation	• Samples will be placed into laboratory-supplied jars and bottles containing appropriate preservatives for the selected analytes to be tested. • Samples will be collected and stored on bagged ice prior to and during transit to the laboratory to minimise sample degradation. • Sample bottles will be filled to the top with no head space and splashing during filling should be prevented. • All samples collected will be recorded on field logs sheets. • Chain of Custody (CoC) forms will be completed for transport. • Quality control samples will be collected during the sampling program as per **Section 4.10.2**.
Waste Disposal	Water purged from taps or bores is expected to be minimal in volume and will be disposed at the ground surface.
Equipment Calibration	Equipment requiring calibration (water quality meter) for environmental assessment purposes will be calibrated by the supplier or by Senversa staff prior to use. Relevant calibration certificates will be provided in the report.

Activity	Description and Further Information
Avoidance of Cross Contamination	Sampling procedures used to prevent cross contamination will consider the guidance provided in Appendix 1 of the Interim Guideline of the Assessment and Management of PFAS (WA DER, 2016[1]) during site works and involve: Samples will be placed into laboratory-supplied jars / bottles appropriate for PFAS sampling (i.e., without Teflon liners). Decontamination of re-usable sampling equipment will be completed between sampling locations, using a potable water wash, and rinse with potable water. Use of dedicated disposable latex free gloves that will be replaced between each sample collection and location. Quality control samples to assess cross contamination will be collected during the sampling program as per **Section 4.10.2**.

4.9 Sample Nomenclature

Sample nomenclature will be based on sample matrix type (surface water, sediment, groundwater). The proposed sample nomenclature to be used is presented in **Appendix A**.

4.10 Laboratory Analysis

All groundwater, surface water, sediment, soil and biota samples will be submitted to chemical laboratories (ALS Environmental Pty Ltd as primary laboratory and Eurofins Environmental Pty Ltd as secondary laboratory) that are NATA accredited for the methods used.

The following PFAS analyses (extended suite of 28 individual PFAS) will be completed on samples collected and scheduled for analysis:

- Perfluorobutane sulfonic acid (PFBS)
- Perfluoropentane sulfonic acid (PFPeS)
- Perfluorohexane sulfonic acid (PFHxS)
- Perfluoroheptane sulfonic acid (PFHpS)
- Perfluorooctane sulfonic acid (PFOS)
- Perfluorodecane sulfonic acid (PFDS)
- Perfluorobutanoic acid (PFBA)
- Perfluoropentanoic acid (PFPeA)
- Perfluorohexanoic acid (PFHxA)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorooctanoic acid (PFOA)
- Perfluorononanoic acid (PFNA)
- Perfluorodecanoic acid (PFDA)
- Perfluoroundecanoic acid (PFUnDA)
- Perfluorododecanoic acid (PFDoDA)
- Perfluorotridecanoic acid (PFTrDA)
- Perfluorotetradecanoic acid (PFTeDA)
- Perfluorooctane sulfonamide (FOSA)
- N-Methyl perfluorooctane sulphonamide (MeFOSA)
- N-Ethyl perfluorooctane sulfonamide (EtFOSA)
- N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)
- N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
- N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)
- N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)
- 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)

[1] WA DER 2016. *Interim Guidelines on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances – Contaminated Sites Guidelines.* Government of Western Australia, Department of Environment Regulations. February 2016.

Sediment samples will additionally be analysed for pH and total organic carbon (TOC).

The following laboratory limits of reporting, where achievable, will be requested from the laboratories:

- Sediment – <0.005 milligrams per kilogram (mg/kg)
- Water – <0.01 µg/L

All PFAS samples collected will be analysed on a standard 5-7day turn-around time (TAT). However, the time required for transport of samples from site to Sydney laboratories will be in addition to any laboratory guaranteed TAT. Senversa notes that the standard quarantine turn-around time at Sydney Airport is 7 days.

4.10.1 Physical Parameters

In addition to the collection of samples for laboratory analysis, the parameters outlined in the table below will also be recorded.

Table 4-9: Physical Parameters to be Assessed for Different Media

Sampling Media	Parameters
Sediment	Logged to AS1726:2017[2]; visual and olfactory observations.
Groundwater	Physio-chemical parameters as per EPA Publication 669[3], obtained during sampling; visual and olfactory observations.
Surface Water / Tank & Tap Water	Physio-chemical parameters, obtained during purging and sampling; visual and olfactory observations.

4.10.2 Quality Assurance Procedures

The data QA/QC procedures to be adopted must provide a consistent approach to evaluation of whether the DQOs required by the project have been achieved. The process focuses on assessment of the useability of the data in terms of accuracy and reliability in forming conclusions on the condition of the element of the environment being investigated.

Table 4-10: Data Quality Objectives for QA/QC Elements

QA/QC Element	Data Quality Objectives
Analytical Laboratories	All methods to be used will be NATA accredited. Changing these arrangements must be justified with detailed assessment and comparison of laboratory methods and analytical reference standards used.
Turnaround Times	A standard laboratory analysis TAT of 5-7 days will be requested for all samples submitted for analysis.

[2] AS1726:2017. *Geotechnical Site Investigations.* 5 February 2017.

[3] EPA Victoria 2022. *Groundwater Sampling Guidelines.* Publication 669.1. February 2022.

QA/QC Element	Data Quality Objectives
Analytical QA/QC Guidance	The QA/QC approach must be based on guidance from the following sources: • AS4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds. • NEPC 2013, Schedule B (3) Guideline on Laboratory Analysis of Potentially Contaminated Soils. • USEPA - Guidance on Systematic Planning Using the Data Quality Objectives Process EPA QA/G-4. • USEPA - Guidance on Environmental Data Verification and Data Validation EPA QA/G-8.
QA/QC Procedures	The QA/QC procedures applied will include the use of equipment decontamination, Chain of Custody documentation, laboratory data verification and the use of quality control samples in accordance with Section 8.2 of AS4482.1-2005. All rinsate blanks and laboratory method blanks have an acceptance limit of concentrations below the laboratory limit of reporting. Detection of an analyte in a rinsate sample must trigger an assessment of the decontamination process followed by an assessment if the analyte reported is a contaminant of interest or if it impacts the validity of the assessment data. The % relative percentage difference (RPD) for field and laboratory duplicates must meet the NEPM (NEPC, 2013) guidelines. A data quality assurance review, which includes a data validation checklist with specific acceptance criteria for each batch of samples. Data quality will be checked against the data validation checklist as results become available throughout the investigation program to establish if further checking of precision or accuracy is required as the investigation progresses.

5.0 Reporting Requirements

On completion of the OMP Year 1 field program, Senversa will prepare an interpretive report on the nature and extent of PFAS. The report will include the following:

- An executive summary.
- A summary of the project objectives and scope of works consistent with those outlined in this SAQP.
- A summary of the environmental setting of the site, including the site-specific topography, geology and hydrogeology.
- A summary of the surface water, sediment and groundwater sampling methodology used.
- Analytical results, including quality assurance assessment.
- Qualitative risk assessment using published and site-specific data.
- Trend analysis and assessment of results against the upper and lower trigger values as defined in the OMP.
- Updated conceptual site model including sources, pathways and receptor linkages and identified data gaps.
- Figures including site and sample location plans and PFAS criteria exceedances.
- Tables and appendices of supporting documentation from field investigations.
- Conclusions on risks to sensitive receptors and assessment against defined trigger values and decision tree as outlined it the OMP.

6.0 References

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Figures

N

ID013_SW01
ID015_BORE
MC_OMP11
MC_OMP10
MC_OMP09
ID014_BORE
PS08
MC_OMP08
MC_OMP07
ID016_BORE
MC_OMP06
MC_OMP05
MC_OMP04
MC_OMP03
PS04
PS03
MC_OMP02
PS11
PWS_HEAD_DAM
PS15
WW11_DAM
AIRPORT_BORE
PS02
A_TAP1
A_TAP4
PS05
MC_OMP01
WC_OMP01
FRE_TAP2
FRE_TAP1
WC_OMP02
WC_OMP03
Broken Bridge Creek
Headstone Creek
Cascade Creek
Watermill Creek
Stockyard Creek
Rocky Point Creek
Town Creek
Cockpit_SW01
Cockpit_SW01
DEPOT_TANK1
DEPOT_TANK2
DEPOT_TAP
DEPOT_TANK 3
WC_OMP04_DUCKDAM
PS10
PS07
WC_OMP05
WC_OMP05
Maxar

DRAFT

Path: S:\01_Jobs\1.NSW_Jobs\S17776_DITCRD_NORFOLK_DSI\C17776_TS.aprx

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Legend:

Water Samples
- Surface Water / Sediment (Cascade and Headstone Creeks)
- Surface Water / Sediment (Mission Creek)
- Surface Water / Sediment (Watermill Creek)
- Tap
- Stock Water (Beef Cattle)
- Fruit and Vegetable Irrigation Water
- Pump
- Stock Water (Chickens)
- Approximate Airport Boundary
- Approximate Extent of Upper Watermill Catchment
- Approximate Extent of Mission Creek Catchment
- Alternative Water Supply
- Creek

Potential Sources
- Group 1 Potential PFAS Primary Source Areas
- Off-site

Details:

Data Sources:
Aerial imagery: Esri maps
Vector Datasets: Open Street Maps

Created: T. Sohi
PM: C. Sandiford
Approved: x
Date: 10/12/2021
Revision: 0

0 710 1,420 2,130 Metres

Datum/Projection:GDA 1994 MGA Zone 55 Scale: (A3) 1:25,000

Figure No: A1

Title: PFAS Management Areas

Project: PFAS Management Plan

Location: Norfolk Island International Airport

Client: Department for Infrastructure, Transport, Regional Development and Communications

Last Edited by: tara.sohi

Appendix A: Sample Nomenclature

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Senversa Pty Ltd

Preliminary PFAS Investigation - Senversa Sample Nomenclature

Sample Type	Sample Nomenclature	Detail
Soil – Surface	SS01, SS02 etc.	For surface soil samples collected within the top 10 cm of the surface.
Soil bores	SB01_0.01, SB01_0.05 etc.	For all target sample locations where soil bores are advanced using a hand auger.
Surface Water Samples	SW01, SW02 etc.	A two-letter identifier will be added to the beginning of the sample ID to identify catchment area, e.g. MC for Mission Creek (MC_SW01).
Sediment Samples	SD01, SD02 etc.	To be paired with surface water locations (i.e. MC_SD01 to be paired with MC_SW01) or a unique ID to be assigned in the event surface water is not sampled.
Water Supply Samples (Public)	PWS_01, PWS_02 etc.	Publicly accessible bores will contain an individual Bore ID starting with PWS (Public Water Supply).
Water Supply Samples (Private Property)	ID001_BORE_01, ID001_BORE_02, ID001_TAP_01 etc.	De-identified IDs to be assigned to each sampled property or location. Sample type to be identified i.e. bore/ tap/ tank etc.
Biota Samples	ID001_FRUIT_01	De-identified IDs to be assigned to each sampled property as per water supply samples above. Biota type to be identified i.e. fruit/ egg/ grass etc.
Quality Samples	QC101, QC102 etc.	To be used for blind (intra-laboratory) duplicates. QA/QC register will be used during field works to record and track the quality samples collected.
	QC201, QC202 etc.	To be used for split (inter-laboratory) duplicates. QC sets will be paired (i.e. QC101 and QC201) at each location.
	QC301, QC302 etc.	To be used for rinsate blanks.
	QC401, QC402 etc.	To be used for trip and/or field blanks.

Always include a “0” before single digit numbers; this is important for ESDAT data management.

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Appendix B: Data Validation

Appendix B: Quality Assurance / Quality Control

The data quality assurance and control (QA/QC) procedures adopted by Senversa provide a consistent approach to evaluation of whether the data quality objectives (DQO's) required by the project have been achieved. The process focuses on assessment of the useability of the data in terms of accuracy and reliability in forming conclusions on the condition of the element of the environment being investigated. The approach is generally based on guidance from the following sources:

- National Environment Protection Council (NEPC), National Environment Protection (Assessment of Site Contamination) Amendment Measure No. 1 2013 (NEPM), Schedule B2: Guideline on Site Characterisation.
- NEPC – National Environment Protection (Assessment of Site Contamination) Amendment Measure No. 1 2013 (NEPM), Schedule B3: Guideline on Laboratory Analysis of Potentially Contaminated Soils.
- Heads of Environmental Protection Authorities (HEPA), PFAS National Environmental Management Plan (PFAS NEMP) 3.0, 2025.
- United States Environmental Protection Agency (USEPA) – Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4).
- USEPA – Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8).

Quality Assurance Procedure

The following data quality objectives, measures and acceptance criteria were adopted to verify compliance with the planned QA procedures:

Quality Assurance Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Standard Procedures	Comparability, Reproducibility, Representativeness.	Standard field sampling procedures and forms used.	No deviation from standard procedure and forms used.
Equipment Calibration	Accuracy.	All equipment calibrated in accordance with manufacturers specifications.	All equipment calibrated in accordance with manufacturers specifications.
Testing Method Accreditation	Accuracy and Comparability.	NATA accredited methods used for all analyses determined.	Primary and secondary laboratories to use NATA accredited methods for all analytes determined
Quality Control Sampling Frequency	Precision and Repeatability.	Field QC sampling frequency in accordance with AS4482.1-2005 and the PFAS NEMP 2.0.	Field Duplicates – ≥ 1 in 10 primary samples. Secondary Duplicates – ≥ 1 in 10 primary samples. Rinsate Blanks – ≥ 1 per day, per matrix per equipment.

Quality Assurance Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
	Accuracy, Precision and Comparability.	Laboratory QC analysis frequency in accordance with NEPC (2013), Schedule B3.	Laboratory Duplicates – at least 1 in 10 analyses or one per process batch Method Blanks – at least 1 per process batch. Surrogate Recoveries – all samples spiked where appropriate (e.g. chromatographic analysis of organics). Laboratory Control Samples – at least 1 per process batch. Matrix Spikes – at least 1 per matrix type per process batch.
Sample Preservation, Handling and Holding Times	Accuracy.	Samples appropriately preserved upon collection, stored and transported, and analysed within holding times.	Sample containers, holding times and preservation in accordance laboratory specific method requirements.
Data Management	Accuracy.	No errors in data transcription.	Entry of field data verified by peer.
Data Useability	Completeness.	Limits of reporting less than adopted beneficial use investigation levels. Sample volumes and analytical methods selected to enable required limits of reporting to be achieved.	Limits of reporting less than investigation levels.

Quality Control Sampling and Analysis

The following data quality objectives, measures and acceptance criteria were adopted to evaluate the validity of the analytical data produced.

Quality Control Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Field Duplicate Sampling and Analysis	Precision and Field Repeatability.	Field duplicate samples used to assess the variability in analyte concentration between samples collected from the sample location and the reproducibility of the laboratory analysis. Where required, resubmission of previously analysed samples for chemicals within their holding times may be undertaken to further assess level of precision.	Analysed for same chemicals as primary sample RPD[1] <30% of mean concentration where both concentrations >20 x limit of reporting. RPD <50% of mean concentration where higher concentration 10 – 20 x limit of reporting. RPD - No limit where both concentrations < 10 x limit of reporting.

[1] Relative Percent Difference (%): Calculated as: (Result No.1 – Result No. 2/Mean Result)*100

Quality Control Process	Data Quality Element	Objectives and Measure	Acceptance Criteria
Secondary Duplicate Sampling and Analysis	Accuracy.	Results are accurate and free from laboratory error. Secondary duplicate samples sent to a secondary laboratory to assess the accuracy of the analyte concentrations reported by the primary laboratory.	Analysed for same chemicals as primary sample. RPD <30% of mean concentration where both concentrations >20 x limit of reporting. RPD <50% of mean concentration where higher concentration 10 – 20 x limit of reporting RPD - No limit where both concentrations < 10 x limit of reporting.
Field Rinsate Blank Preparation and Analysis	Accuracy and Representativeness.	Cross contamination of samples does not occur between sampling locations due to carry-over from sampling equipment. Rinsate blank samples prepared for each sampling procedure. Where possible the rinsate blanks are prepared immediately after sampling locations known to contain concentrations of the chemicals of concern above the limit of quantification and / or before sampling locations where the chemicals being targeted in the laboratory analysis are to be compared to investigation levels near the limit of quantification of the chemical.	Analyte concentrations below limits of reporting.
Trip Blank Sampling and Analysis	Accuracy and Representativeness.	Cross contamination between samples does not occur in transit or as an artefact of the sample handling procedure. Trip blank samples prepared by the laboratory which accompany the empty sampling containers from the laboratory to the sampling site, and return with the samples to the laboratory to assess whether cross contamination occurs between samples or as an artefact of the sampling procedure.	Analyte concentrations below limits of reporting.
Laboratory QC Analysis	Laboratory Precision and Accuracy.	Laboratory duplicates.	As specified by the laboratory.
		Laboratory control spike.	Dynamic recovery limits as specified by the laboratory.
		Surrogate recovery.	Dynamic recovery limits as specified by the laboratory.
		Matrix spike recovery	Recovery 70% – 130% or dynamic recovery limits specified by laboratory. However note that recovery of phenols is generally significantly lower and a recovery in the range 20% to 130% is considered acceptable by most laboratories.

Data Verification and Validation

The data validation process involved the checking of analytical procedure compliance with acceptance criteria and an assessment of the accuracy and precision of analytical data from the range of quality control indicators generated from both the sampling and analytical programmes.

The checks undertaken are summarised in the attached data validation checklist **Table B1**. Field replicate analytical results relevant to the project are summarised in **Table B2**.

Instances where the data quality acceptance criteria were not achieved are discussed in the table below:

Item	Comment
Field and Secondary Duplicate Sampling and Analysis	Water All water sample primary and duplicate sample pairs were within acceptable RPD limits, with the exception of: • Intra-laboratory sample QC104 (primary sample WC_OMP03) RPD outliers reported for PFOS (35%) and PFHxS (39%). • Inter-laboratory sample QC202 (primary sample MC_OMP01) RPD outlier reported for PFOS (39%). Primary and duplicate PFAS concentrations were within the same order of magnitude and the variations did not alter criteria exceedances. The non-conformity is considered likely due to low analyte concentrations. Therefore, non-compliance is not considered to impact on the quality of data. Biota No duplicate samples were collected for biota analysis due to the preliminary nature of this aspect of the investigation. Biota results should be considered to have a lower level of certainty.
Laboratory Matrix Spike Analysis	Batch ES2537583 soil and water analysis: • PFOS, PFHxS, PFDS MS recovery not determined, background level greater than or equal to 4x spike level. Batch ES2537238 biota analysis: • PFPeA MS recovery not determined, background level greater than or equal to 4x spike level. • MeFOSA recovery greater than upper data quality objective (123%). • 10:2 FTS recovery less than lower data quality objective (91%). MeFOSA and 10:2 FTS are not a critical CoPC and this low magnitude non-conformance is not considered to impact interpretation of the biota results.
Laboratory Control Sample Analysis	Batch ES2537238 biota analysis: • MeFOSA recovery greater than upper control limit (107 - 118%). MeFOSA is not a critical CoPC and this minor non-conformance is not considered to impact interpretation of the biota results.
Data Representativeness	Sample Receipt Temperature Samples were received by the primary laboratory at 21.4-22.3°C, which is above the recommended temperature range (≤6°C). Given the persistent nature of PFAS, the elevated temperature is not considered to have affected the quality of the data presented.

Data Suitability

While a small number of QC results were outside specified acceptance criteria, these were not considered to significantly impact on the quality or representativeness of the data, and the majority of results indicated that the precision and accuracy of the data were within acceptable limits. The results are therefore considered to be representative of chemical concentrations in the environmental media sampled at the time of sampling, and to be suitable to be used for their intended purpose in forming conclusions relating to the contamination status of water, soil, sediment and biota at the site.

Sampling Data Validation Checklist

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Project Name:	Ongoing Monitoring - Year 4	**Project Number:**	C17776

Sampling Information

Sample Media:	Soil, Sediment, Water, Biota
Date Sampled:	17-20/11/2025
Days of Sampling:	4
Sampling Personnel:	MA, HD
Primary Laboratory:	ALS
Secondary Laboratory:	Envirolab
No. Batches:	3
Batch IDs:	ES2537583, ES2537238, 396838

Sample Type	No.	Frequency			DQI Compliant?
Primary:	54	-			
Intra-laboratory duplicate (FD):	6	1 per	9	primary samples	Yes
Inter-laboratory duplicate (FT):	6	1 per	9	primary samples	Yes
Trip Blank (TB):	0	1 per	-	day / batch	Yes
Rinsate Blank (RB):	1	1 per	4	day / batch	-
Trip Spike (TS):	0	1 per	-	day / batch	-
Other:	NA				-

Precision

Intra-laboratory Duplicate (FD) analyses

Analyte Grou	Matrix	Primary ID	Duplicate ID	DQI Compliant?	Comments
PFAS	Sediment	WC_OMP04_DU(	QC100	Yes	
PFAS	Water	WWII_DAM	QC101	Yes	
PFAS	Water	MC_OMP01	QC102	Yes	
PFAS	Water	MC_OPM06	QC103	Yes	
PFAS	Water	MC_OPM03	QC104	No	RPD exceedance for PFOS (35%) and PFHxS (39%).
PFAS	Water	MC_OPM02	QC105	Yes	

Inter-laboratory Duplicate (FT) analyses

Analyte Group		Primary ID	Duplicate ID	DQI Compliant?	Comments
PFAS	Sediment	WC_OMP04_DU(	QC200	Yes	
PFAS	Water	WWII_DAM	QC201	Yes	
PFAS	Water	MC_OMP01	QC202	No	RPD exceedance for PFOS (39%).
PFAS	Water	MC_OPM06	QC203	Yes	
PFAS	Water	MC_OPM03	QC204	Yes	
PFAS	Water	MC_OPM02	QC205	Yes	

Laboratory Duplicate (LD) analyses

Batch No.	Matrix	Analyte Group	DQI Compliant?	Comments
ES2537583	Soil, water	PFAS	Yes	Frequencies met NEPM B3 and ALS QC standards.
ES2537238	Biota	PFAS	Yes	
396838	Soil, water	PFAS	Yes	

Accuracy

Laboratory Control Sample (LCS) analyses

Batch No.(s)	Matrix	Analyte Group	DQI Compliant?	Comments
ES2537583	Soil, water	PFAS	Yes	
ES2537238	Biota	PFAS	No	MeFOSA recovery greater than upper control limit (107 - 118%).
396838	Soil, water	PFAS	Yes	

Surrogate Compound or Reference analyses

Batch No.(s)	Matrix	Analyte Group	DQI Compliant?	Comments
ES2537583	Soil, water	PFAS	Yes	
ES2537238	Biota	PFAS	Yes	
396838	Soil, water	PFAS	Yes	

Spike Samples

Type	Analyte Group	Batch No.	DQI Compliant?	Comments
Laboratory matrix spike (MS)	PFAS	ES2537583	No	PFOS, PFHxS, PFDS MS recovery not determined, background level greater than or equal to 4x spike level.
Laboratory matrix spike (MS)	PFAS	ES2537238	No	PFPeA MS recovery not determined, background level greater than or equal to 4x spike level. MeFOSA recovery greater than upper data quality objective (123%). 10:2 FTS recovery less than lower data quality objective (91%).
Trip Spike (TS)	PFAS		Yes	

Blank Samples

Type	Analyte Group	DQI Compliant?	Comments
Laboratory Blank (LB):	PFAS	Yes	
Rinsate Blank (RB):	PFAS	Yes	

Field equipment calibration

Equipment	Calibrated?	Record?	Equipment	Calibrated?	Record?
WQM	Yes	Yes			

Represent-ativeness

	DQI Compliant?	Comments
Appropriate & standard sampling methods used for media/CoPC?	Yes	
Appropriate decontamination procedures carried out?	Yes	
Samples collected in appropriate containers / preservatives?	Yes	
Samples received at appropriate temperature / or with ice present?	No	Batch reported elevated temp. 21.4-22.3 degrees due to long transit period
Samples extracted / analysed within holding times?	Yes	
Samples analysed using appropriate NATA accredited methods?	Yes	

Compar-ability

	DQI Compliant?	Comments
Consistent sampling methods used?	Yes	
Sampler(s) appropriately trained?	Yes	
Consistent site conditions and field scientist(s)?	Substantial	Rainfall event occurred during part of program - not considered of environmental consequence.
Consistent analytical methods used?	Yes	

Completeness

	DQI Compliant?	Comments
Field records / logs complete and retained?	Yes	
Frequency of QC samples adequate per sampling plan?	Yes	
Requested analyses completed per sampling plan?	Yes	
Appropriate PQLs? (relative to adopted criteria; available)	Yes	
Chain-of-custody forms complete and correct?	Yes	
QC check of data tables (against field records / laboratory reports)?	Yes	

Data Use Suitability

	Yes / No
Data from critical samples considered of suitable quality?	Yes
Data considered suitable for the objective of the assessment?	Yes

Overall Comments: While a small number of QC results were outside specified acceptance criteria, these were not considered to significantly impact on the quality or representativeness of the data, and majority of results indicated that the precision and accuracy of the data was within acceptable limits. The results are therefore considered to be representative of chemical concentrations in the environmental media sampled at the time of sampling, and to be suitable to be used for their intended purpose in forming conclusions relating to the contamination status of soil, sediment, water and biota at the site.

Performed By:	MA	Checked By:	KR
Date:	19/01/2026	Date:	20/01/2026

Table B2: Water RPD Results
Norfolk PFAS OMP

		Location Code	MC_OMP01	MC_OMP01		MC_OMP01	MC_OMP01		MC_OMP02	MC_OMP02		MC_OMP02	MC_OMP02		MC_OMP03	MC_OMP03		MC_OMP03	MC_OMP03	
		Field ID	MC_OMP01	QC102		MC_OMP01	QC202		MC_OMP02	QC105		MC_OMP02	QC205		MC_OMP03	QC104		MC_OMP03	QC204	
		Date	19/11/2025	20/11/2025		19/11/2025	20/11/2025		20/11/2025	20/11/2025		20/11/2025	20/11/2025		20/11/2025	20/11/2025		20/11/2025	20/11/2025	
		Sample Type	Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D	
		Lab Report No.	ES2537583	ES2537583	RPD	ES2537583	396838	RPD	ES2537583	ES2537583	RPD	ES2537583	396838	RPD	ES2537583	ES2537583	RPD	ES2537583	396838	RPD
	Unit	EQL																		
(n:2) Fluorotelomer Sulfonic Acids																				
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.02	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
Perfluoroalkane Carboxylic Acids																				
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	0.92	0.92	0	0.92	-	-	0.07	0.09	25	0.07	-	-	0.09	0.11	20	0.09	-	-
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.23	0.23	0	0.23	-	-	0.13	0.15	14	0.13	-	-	0.13	0.14	7	0.13	-	-
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	0.18	0.17	6	0.18	-	-	0.03	0.03	0	0.03	-	-	0.03	0.03	0	0.03	-	-
Perfluorobutanoic acid (PFBA)	µg/L	0.1	0.1	0.1	0	0.1	-	-	<0.1	<0.1	0	<0.1	-	-	<0.1	<0.1	0	<0.1	-	-
Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.47	0.48	2	0.47	0.41	14	0.02	0.02	0	0.02	0.01	67	0.02	0.03	40	0.02	0.02	0
Perfluoroalkane Sulfonic Acids																				
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	16.3	12.4	27	16.3	11	**39**	0.05	0.05	0	0.05	0.05	0	0.33	0.47	**35**	0.33	0.33	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	0.71	0.74	4	0.71	-	-	0.04	0.03	29	0.04	-	-	0.06	0.07	15	0.06	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	6.50	7.04	8	6.50	6.4	2	0.24	0.28	15	0.24	0.23	4	0.37	0.55	**39**	0.37	0.43	15
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	0.48	0.49	2	0.48	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	0.02	0	<0.02	-	-
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	0.84	0.89	6	0.84	0.65	26	0.04	0.05	22	0.04	0.04	0	0.06	0.09	40	0.06	0.06	0
Perfluoroalkyl Sulfonamides																				
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 1000 (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**

Table B2: Water RPD Results
Norfolk PFAS OMP

		Location Code	MC_OMP06	MC_OMP06		MC_OMP06	MC_OMP06		WWII_DAM	WWII_DAM		WWII_DAM	WW11_DAM	
		Field ID	MC_OMP06	QC103		MC_OMP06	QC203		WW11_DAM	QC101		WW11_DAM	QC201	
		Date	20/11/2025	20/11/2025		20/11/2025	20/11/2025		20/11/2025	20/11/2025		20/11/2025	20/11/2025	
		Sample Type	Normal	Field_D		Normal	Interlab_D		Normal	Field_D		Normal	Interlab_D	
		Lab Report No.	ES2537583	ES2537583	RPD	ES2537583	396838	RPD	ES2537583	ES2537583	RPD	ES2537583	396838	RPD
	Unit	EQL												
(n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.02	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
Perfluoroalkane Carboxylic Acids														
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	0.55	0.59	7	0.55	-	-	0.49	0.53	8	0.49	-	-
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorononanoic acid (PFNA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.16	0.17	6	0.16	-	-	0.12	0.14	15	0.12	-	-
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	0.10	0.10	0	0.10	-	-	0.11	0.10	10	0.11	-	-
Perfluorobutanoic acid (PFBA)	µg/L	0.1	0.1	<0.1	0	0.1	-	-	<0.1	0.1	0	<0.1	-	-
Perfluorodecanoic acid (PFDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.22	0.21	5	0.22	0.19	15	0.30	0.29	3	0.30	0.26	14
Perfluoroalkane Sulfonic Acids														
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	5.09	4.51	12	5.09	4.5	12	13.5	12.8	5	13.5	12	12
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.02	0.41	0.42	2	0.41	-	-	0.47	0.40	16	0.47	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	3.37	4.04	18	3.37	3.3	2	3.87	4.20	8	3.87	3.9	1
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	0.18	0.22	20	0.18	-	-	0.27	0.28	4	0.27	-	-
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	0.39	0.49	23	0.39	0.40	3	0.39	0.45	14	0.39	0.38	3
Perfluoroalkyl Sulfonamides														
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each E**
*****Interlab Duplicates are matched on a per compound basis as methods vary between labo**

Table B3: Soil RPD Results
Norfolk PFAS OMP

		Location Code	WC_OMP04_DUCKDAM	WC_OMP04_DUCKDAM		WC_OMP04_DUCKDAM	WC_OMP04_DUCKDAM	
		Field ID	WC_OMP04_SD	QC100		WC_OMP04_SD	QC200	
		Date	19/11/2025	19/11/2025		19/11/2025	19/11/2025	
		Sample Type	Normal	Field_D		Normal	Interlab_D	
		Lab Report No.	ES2537583	ES2537583	RPD	ES2537583	396838	RPD
	Unit	EQL						
(n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.0001	<0.0005	<0.0005	0	<0.0005	<0.0002	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0002	<0.0005	<0.0005	0	<0.0005	<0.0004	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
Perfluoroalkane Carboxylic Acids								
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	-	-
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorooctanoic acid (PFOA)	mg/kg	0.0001	<0.0002	<0.0002	0	<0.0002	<0.0002	0
Perfluoroalkane Sulfonic Acids								
Perfluorooctanesulfonic acid (PFOS)	mg/kg	0.0001	0.0100	0.0083	19	0.0100	0.0086	15
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0001	0.0008	0.0009	12	0.0008	0.0008	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorodecanesulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0001	<0.0002	<0.0002	0	<0.0002	<0.0002	0
Perfluoroalkyl Sulfonamides								
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 1000 (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**

Table B4: Blanks Analytical Results
NORFOLK PFAS OMP

		Field ID	QC500
		Date	21/11/2025
		Sample Type	Rinsate
		Lab Report No.	ES2537583
	Unit	EQL	
(n:2) Fluorotelomer Sulfonic Acids			
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.005	<0.005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005
Perfluoroalkane Carboxylic Acids			
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
Perfluorododecanoic acid (PFDoDA)	µg/L	0.002	<0.002
Perfluorononanoic acid (PFNA)	µg/L	0.002	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.005	<0.005
Perfluoro-n-hexadecanoic acid (PFHxDA)	µg/L	0.005	<0.005
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
Perfluorodecanoic acid (PFDA)	µg/L	0.002	<0.002
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.002	<0.002
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
Perfluoroalkane Sulfonic Acids			
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.002	<0.002
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
Perfluorodecanesulfonic acid (PFDS)	µg/L	0.002	<0.002
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.002	<0.002
Perfluoroalkyl Sulfonamides			
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.005	<0.005
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.002	<0.002
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.002	<0.002
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.005	<0.005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.005	<0.005
Perfluorooctane sulfonamide (FOSA)	µg/L	0.002	<0.002

Air-Met Scientific Pty Ltd
PO Box 133
Nunawading VIC 3131
Australia
Phone: 1800 000 744

CERTIFICATE OF CALIBRATION

This document certifies that the instrument detailed has been calibrated to the parameters listed below

CertificateNumber : 18L101818-R-8-20251114
Calibration Date: 14/11/2025
Next Calibration Due: 14/02/2026

Customer: Air-Met Scientific (National Rental)
Address: 65 Moray Street , , SOUTH MELBOURNE , 3205
Equipment No: EP020314
Unit Under Test: YSI ProPlus Water Quality Meter
Serial No: 18L101818
Service Order No: CAL09965

Test Results

Item	Test	Pass	Comments
BATTERY	Capacity checked	Pass	
DISPLAY	Display/Backlight checked	Pass	
PCB	Inspected	Pass	
CASE	Inspected & Cleaned	Pass	
KEYPAD	Function checked	Pass	
SENSOR(S)	Cleaned	Pass	

Reference Equipment:

Equipment ID	Description	Expiry Date	Reference Certificate Number
MECOND	452241		
MEPH7	441789		
MEPH4	443801		
MEORP			
MEDO	445389		

Results:

Sensor	Units	Applied Value	Results		Pass/ Fail	Comments
			As Found	As Left		
TEMPERATURE	°C	17.8	17.8	17.8	Pass	
CONDUCTIVITY	µS/cm	2760	2677	2760	Pass	
PH4	pH	4	4.33	4	Pass	
PH7	pH	7	7.31	7	Pass	

Certified System
Quality
ISO 9001
SAI GLOBAL

ORP	mV	237.74	226.6	237.74	Pass	
DISSOLVED OXYGEN	%	100	114.6	100	Pass	

Note:

Calibrated By: REBECCA.MASSOUD **Signed:** *REBECCA.MASSOUD*

Appendix C: Field Observations

Table - Field Observations
Norfolk PFAS OMP
Norfolk Island
DITRDCSA
C17776

Location Name	Date	Matrix	Scope	PFAS Standard LOR	PFAS low level LOR	Not Analysed	Location	Tempratu re	DO	EC	TDS - estimated	pH	Redox	Turbidity (Description)	Colour	Odour	Sheen
A_TAP1	17/11/2025	SW	OMP		X		Airport check-in area	23	6.22	45.4	29.51	6.6	-276.4	Non-turbid	colourless	no odour	no sheen
A_TAP12	17/11/2025	SW	Data Gap			X	Airport arrival lounge	22.4	5.97	31.8	20.67	5.56	-250.4	Non-turbid	colourless	no odour	no sheen
A_TAP15	17/11/2025	SW	Data Gap		X		Airport departure gate fountain	13.2	7.34	25.2	16.38	6.03	-315.4	Non-turbid	colourless	no odour	no sheen
A_TAP16A	17/11/2025	SW	Data Gap			X	Airport departure lounge bathroom	22.8	6.02	31.7	20.605	6.25	-272.5	Non-turbid	colourless	no odour	no sheen
A_TAP4	19/11/2025	SW	OMP		X		Airport mechanic shed former kitchen	22.6	4.11	35.6	23.14	6.11	-126	Non-turbid	colourless	no odour	no sheen
A_TAP5	19/11/2025	SW	Data Gap		X		BoM station kitchen	24.1	6.97	45.7	29.705	6.19	-210	Non-turbid	colourless	no odour	no sheen
A_TRUCKFILL_SS1	20/11/2025	SOIL	Data Gap	X			Soil below Ben Christian down pipe	-	-	-	-	-	-	-	-	-	-
A_TRUCKFILL_SS2	20/11/2025	SOIL	Data Gap			X	Soil downgradient of Ben Christian down pipe	-	-	-	-	-	-	-	-	-	-
AIRPORT_BORE	17/11/2025	GW	OMP	X			Sample collected from concrete holding tank where pumped airport bore water is stored, prior to POET treatment.	21.4	7.68	545	354.25	6.25	-287.6	Non-turbid	colourless	no odour	no sheen
BALL_SED01	21/11/2025	SED	Data Gap			X	Ball Bay creek	-	-	-	-	-	-	-	-	-	-
BALL_SS3	21/11/2025	SOIL	Data Gap	X			Ball Bay firefighting water drainage basin	-	-	-	-	-	-	-	-	-	-
BALL_SS4	21/11/2025	SOIL	Data Gap	X			Ball Bay next to foam storage, monitors	-	-	-	-	-	-	-	-	-	-
BALL_SS5	21/11/2025	SOIL	Data Gap	X			Ball Bay next to foam storage, front gate	-	-	-	-	-	-	-	-	-	-
BALL_SW01	21/11/2025	SW	Data Gap			X	Ball Bay creek	21.4	3.79	1035	672.75	6.38	-215.1	Non-turbid	colourless	no odour	no sheen
Cockpit_SW01	18/11/2025	SW	OMP	X			Cockpit Creek	21.2	7	357	232.05	6.49	-264.4	Non-turbid	colourless	no odour	no sheen
COUNCIL_TAP1	20/11/2025	SW	NIRC Request		X		Kitchen tap NIRC	25.2	4.47	25.2	16.38	7.33	-189.5	Non-turbid	colourless	no odour	-
DEPOT_TANK1	17/11/2025	SW	OMP	X			Underground tank	23.7	5.99	41.2	26.78	6.8	-291.7	Non-turbid	colourless	no odour	no sheen
DEPOT_TANK2	17/11/2025	SW	OMP	X			Underground tank	24.7	4.75	36.3	23.595	6.62	-298.7	Non-turbid	colourless	no odour	no sheen
DEPOT_TANK3	17/11/2025	SW	OMP			X	Council depot rainwater tank	22.1	7.8	33.3	21.645	6.1	-255.3	Non-turbid	colourless	no odour	no sheen
DEPOT_TAP1	17/11/2025	SW	OMP		X		Council depot kitchen tap	24.7	5.8	40.3	26.195	6.48	-324	Non-turbid	colourless	no odour	no sheen
ELEC_TAP1	19/11/2025	SW	Data Gap		X		Electricity depot next to terminal	26.5	5.48	32	20.8	6.44	31.3	Non-turbid	colourless	no odour	no sheen
FRE_TAP1	19/11/2025	SW	OMP		X		Fire station kitchen tap, connected to temporary pipework and desal water tank.	29	6.68	735	477.75	7	-225.4	Non-turbid	colourless	no odour	no sheen
FRE_TAP2	19/11/2025	SW	OMP	X			Fire hydrant tap, connected to 2x underground concrete storage tanks supplied by POET-treated Airport Bore water.	26.2	4.64	122.6	79.69	6.93	-213.8	Non-turbid	colourless	no odour	no sheen
FRE_TAP6	19/11/2025	SW	Data Gap		X		EMNI kitchen tap connected to existing building plumbing, understood to be connected to the relined fire station rainwater tanks.	24	5.25	626	406.9	7.05	-191	Non-turbid	colourless	no odour	no sheen
ID008_BIOTA1	20/11/2025	BIOTA	Data Gap	X			Zuccini	-	-	-	-	-	-	-	-	-	-
ID008_BIOTA2	20/11/2025	BIOTA	Data Gap	X			Tomato	-	-	-	-	-	-	-	-	-	-
ID008_BIOTA3	20/11/2025	BIOTA	Data Gap	X			Silver beet	-	-	-	-	-	-	-	-	-	-
ID008_BIOTA4	20/11/2025	BIOTA	Data Gap	X			Parsley	-	-	-	-	-	-	-	-	-	-
ID008_SS1	20/11/2025	SOIL	Data Gap			X	Soil north downgradient of foam application, pumpkin patch	-	-	-	-	-	-	-	-	-	-
ID008_SS2	20/11/2025	SOIL	Data Gap	X			Soil within foam application area and below parsley and silver beet biota samples	-	-	-	-	-	-	-	-	-	-
ID013_BORE	17/11/2025	GW	OMP	X				21.3	4.96	819	532.35	5.93	-178.3	Non-turbid	colourless	no odour	no sheen
ID014_BORE	17/11/2025	SW	OMP	X			Pumped Mission Creek water	23.9	5.74	546	354.9	6.75	-245.5	Slightly turbid	colourless	no odour	no sheen
ID016_BORE	17/11/2025	GW	OMP	X				21.4	5.29	610	396.5	5.26	-204.9	Non-turbid	colourless	no odour	no sheen
ID019_BORE	20/11/2025	GW	Swap	X				21.4	3.2	301.9	196.235	4.77	-69.1	Non-turbid	colourless	no odour	no sheen
MC_OMP01	20/11/2025	SW	OMP	X			Resampled after rain event	19.3	6.85	348.1	226.265	6.32	-128.6	Non-turbid	colourless	no odour	no sheen
MC_OMP01	17/11/2025	SW	OMP			X		19.6	6.57	361.3	234.845	6.5	-241.1	Non-turbid	colourless	no odour	no sheen
MC_OMP02	20/11/2025	SW	OMP	X				21.6	4.96	404.3	262.795	6.72	-152.9	Non-turbid	colourless	no odour	-
MC_OMP03	20/11/2025	SW	OMP	X				21.4	7.22	422.4	274.56	6.65	-138.1	Non-turbid	colourless	no odour	no sheen
MC_OMP04A	20/11/2025	SW	OMP	X			Location moved slightly upstream due to thick vegatation	20	5.11	408.9	265.785	6.5	-159.5	Slightly turbid	light brown	no odour	no sheen
MC_OMP05A	20/11/2025	SW	OMP	X			Location moved slightly upstream due to thick vegatation	21.1	7.08	418.9	272	6.37	-144.1	Slightly turbid	light brown	no odour	no sheen
MC_OMP06	20/11/2025	SW	OMP	X				24	5.19	661	429.65	6.37	-133.6	Highly turbid	brown	no odour	no sheen
MC_OMP07A	20/11/2025	SW	OMP	X			Location moved upstream of road as no access provided to MC_OMP07 & 8 property	19.5	6.03	441.5		6.62	-143.2	Slightly turbid	light brown	no odour	no sheen
MC_OMP09	17/11/2025	SW	OMP	X				25.5	5.46	569	369.85	6.24	-228.6	Slightly turbid	colourless	no odour	no sheen
MC_OMP10	19/11/2025	SW	OMP	X				21.6	1.97	379.7	246.805	6.45	-181.5	Slightly turbid	colourless	no odour	no sheen
MC_OMP11	17/11/2025	SW	OMP	X				20.8	4.96	565	367.25	7.04	-355.4	Non-turbid	colourless	no odour	no sheen
PWS_BUMBORA_TOILET	19/11/2025	SW	Data Gap			X		21.4	5.39	69.1	44.915	6.73	-296.9	Non-turbid	colourless	no odour	no sheen
PWS_HEAD_DAM	19/11/2025	SW	OMP	X				21.9	0.67	457.3	297.245	6.4	-260.1	Moderately turbid	brown	no odour	no sheen
PWS_HEAD_TOILET	19/11/2025	SW	Data Gap			X		21	6.24	523	339.95	6.79	-202.7	Non-turbid	colourless	no odour	no sheen
PWS_HOSP_TANK1	18/11/2025	SW	Data Gap			X	Rainwater tank	21.4	6.5	16.6	10.79	5.22	-244	Non-turbid	colourless	no odour	no sheen
PWS_HOSP_TAP1	18/11/2025	SW	Data Gap		X		Right filter after filtration	22.7	6.9	32.4	21.06	6.26	-365.5	Non-turbid	colourless	no odour	no sheen
PWS_HOSP_TAP3	18/11/2025	SW	Data Gap		X		Left filter after filtration	22.4	6.53	18.6	12.09	5.84	-325.1	Non-turbid	colourless	no odour	no sheen
PWS_HOSP_TAP4	18/11/2025	SW	Data Gap		X		Hospital kitchen	22	6.73	23.4	15.21	6.19	-241.8	Non-turbid	colourless	no odour	no sheen
PWS_HOSP_TAP6	18/11/2025	SW	Data Gap		X		First tap (outside) after filtration room	22.3	6.04	19.2	12.48	5.59	-28.3	Non-turbid	colourless	no odour	no sheen
PWS_HOSP_TAP8	18/11/2025	SW	Data Gap		X		Laundry tap. Bore water after filtration. No pre-filtration point accessible.	20.2	4.8	359.2	233.48	5.88	-259.4	Non-turbid	colourless	no odour	no sheen
WASTE_TAP1	20/11/2025	SW	Data Gap		X		Waste transfer center kitchen tap	21.2	6.23	23.4	15.21	6.02	-225.6	Non-turbid	colourless	no odour	no sheen
WC_BIOTA1	19/11/2025	BIOTA	Data Gap	X			Watermill dam water hyacinth. Dominant vegetation.	-	-	-	-	-	-	-	-	-	-
WC_BIOTA2	19/11/2025	BIOTA	Data Gap			X	Watermill dam knot weed, less prominent	-	-	-	-	-	-	-	-	-	-
WC_OMP01	17/11/2025	SW	OMP	X				20	1	358.3	232.895	5.88	-372.7	Non-turbid	colourless	no odour	no sheen
WC_OMP02	17/11/2025	SW	OMP	X				19.3	6.63	358.6	233.09	6.16	-240.3	Slightly turbid	colourless	no odour	no sheen
WC_OMP03	18/11/2025	SW	OMP	X				19.9	8.29	252.5	164.125	6.68	-228	Slightly turbid	light brown	no odour	no sheen
WC_OMP04_DUCKDAM	19/11/2025	SED	Data Gap	X				-	-	-	-	-	-	-	-	-	-
WC_OMP04_DUCKDAM	18/11/2025	SW	OMP	X				20.2	0.37	313.2	203.58	6.41	-369.7	Slightly turbid	colourless	no odour	-
WC_OMP05	18/11/2025	SW	OMP	X				23.3	3.94	508	330.2	6.61	-278.5	Slightly turbid	light brown	no odour	no sheen
WC-03_BORE	18/11/2025	GW	Data Gap		X		Water carter. Collected from pump tap on groundwater bore.	21.2	7.09	207.6	134.94	4.67	-205	Non-turbid	colourless	no odour	no sheen
WC-04	18/11/2025	GW	Extra		X		Water carter. Collected from pump tap on groundwater bore.	22.9	5.68	437.4	284.31	6.47	-291.9	Non-turbid	colourless	no odour	no sheen
WW11_DAM	20/11/2025	SW	OMP	X			After rain consistent with remaining MC samples	20	0.76	399.1	259.415	5.94	-220	Slightly turbid	colourless	no odour	no sheen
WW11_DAM	17/11/2025	SW	OMP			X	Sampled 17/11 prior to heavy rain	20	0.18	403.3	262.145	6.1	-465	Slightly turbid	light brown	no odour	no sheen

Appendix D: Laboratory Certificates

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

CERTIFICATE OF ANALYSIS 396838

Client Details

Client	Senversa Pty Ltd
Attention	Michelle Agnew
Address	6/15 William St, Melbourne, VIC, 3000

Sample Details

Your Reference	**C17776 Norfolk DSI**
Number of Samples	1 Sediment, 5 Water
Date samples received	28/11/2025
Date completed instructions received	01/12/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	05/12/2025
Date of Issue	05/12/2025

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Josh Williams, Senior R&D Chemist
Phalak Inthakesone, Organics Development Manager, Sydney
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

PFAS in Soils Short		
Our Reference		396838-1
Your Reference	UNITS	QC200
Date Sampled		19/11/2025
Type of sample		Sediment
Date prepared	-	04/12/2025
Date analysed	-	05/12/2025
Perfluorobutanesulfonic acid	µg/kg	<0.2
Perfluorohexanesulfonic acid - PFHxS	µg/kg	0.8
Perfluorooctanesulfonic acid PFOS	µg/kg	8.6
Perfluorooctanoic acid PFOA	µg/kg	<0.2
6:2 FTS	µg/kg	<0.2
8:2 FTS	µg/kg	<0.4
Surrogate $^{13}C_8$ *PFOS*	%	93
Surrogate $^{13}C_2$ *PFOA*	%	100
Extracted ISTD $^{13}C_3$ *PFBS*	%	84
Extracted ISTD $^{18}O_2$ *PFHxS*	%	89
Extracted ISTD $^{13}C_4$ *PFOS*	%	89
Extracted ISTD $^{13}C_4$ *PFOA*	%	93
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	106
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	114
Total Positive PFHxS & PFOS	µg/kg	9.3
Total Positive PFOS & PFOA	µg/kg	8.6
Total Positive PFAS	µg/kg	9.3

Moisture		
Our Reference		396838-1
Your Reference	UNITS	QC200
Date Sampled		19/11/2025
Type of sample		Sediment
Date prepared	-	02/12/2025
Date analysed	-	03/12/2025
Moisture	%	51

PFAS in Waters Short						
Our Reference		396838-2	396838-3	396838-4	396838-5	396838-6
Your Reference	UNITS	QC201	QC202	QC203	QC204	QC205
Date Sampled		20/11/2025	20/11/2025	20/11/2025	20/11/2025	20/11/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/12/2025	04/12/2025	04/12/2025	04/12/2025	04/12/2025
Date analysed	-	05/12/2025	05/12/2025	05/12/2025	05/12/2025	05/12/2025
Perfluorobutanesulfonic acid	µg/L	0.38	0.65	0.40	0.06	0.04
Perfluorohexanesulfonic acid - PFHxS	µg/L	3.9	6.4	3.3	0.43	0.23
Perfluorooctanesulfonic acid PFOS	µg/L	12	11	4.5	0.33	0.05
Perfluorooctanoic acid PFOA	µg/L	0.26	0.41	0.19	0.02	0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	96	97	94	94	94
Surrogate $^{13}C_2$ *PFOA*	%	92	98	94	98	93
Extracted ISTD $^{18}O_2$ *PFHxS*	%	107	103	101	102	105
Extracted ISTD $^{13}C_4$ *PFOS*	%	98	100	100	102	102
Extracted ISTD $^{13}C_4$ *PFOA*	%	109	109	106	107	108
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	121	117	124	115	117
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	120	127	122	124	124
Total Positive PFHxS & PFOS	µg/L	16	18	7.8	0.76	0.27
Total Positive PFOA & PFOS	µg/L	12	12	4.6	0.35	0.06
Total Positive PFAS	µg/L	16	19	8.4	0.84	0.33

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: PFAS in Soils Short					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			04/12/2025	[NT]	[NT]	[NT]	[NT]	04/12/2025	[NT]
Date analysed	-			05/12/2025	[NT]	[NT]	[NT]	[NT]	05/12/2025	[NT]
Perfluorobutanesulfonic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluorooctanesulfonic acid PFOS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorooctanoic acid PFOA	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
6:2 FTS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
8:2 FTS	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	110	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			04/12/2025	[NT]	[NT]	[NT]	[NT]	04/12/2025	[NT]
Date analysed	-			05/12/2025	[NT]	[NT]	[NT]	[NT]	05/12/2025	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	106	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	105	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	93	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	108	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	116	[NT]	[NT]	[NT]	[NT]	111	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	129	[NT]	[NT]	[NT]	[NT]	132	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	129	[NT]	[NT]	[NT]	[NT]	136	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

PFAS Soil: PQLs raised due to high moisture content.

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Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Chain of Custody Documentation

Laboratory:	ALS NSW
Address:	277-289 Woodpark Road, Smithfield
Contact:	Sample Receipt
Phone:	

Job Number:	C17776	Purchase Order:	Senversa national quote
Project Name:	Norfolk DSI	Quote No:	
Sampled By:	Michelle Agnew, Hollie Dunstan	Turn Around Time:	STD
Project Manager:	Michelle Agnew	Page:	1 of 5
Email Report To:	michelle.agnew@senversa.com.au	Phone/Mobile:	044 8910424

Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	~~PFAS Standard~~	PFAS	Email Analysis Request	HOLD	Comments: e.g. Highly contaminated sample: hazardous materials present; trace LORs etc.
1	WWII_DAM	WATER	20/11/25				X				
2	MC_OMP01	↓	"				X				
3	MC_OMP02		↓				X				
4	MC_OMP03						X				
5	MC_OMP04a						X				
6	MC_OMP05a						X				
7	MC_OMP06						X				
8	MC_OMP07a						X				
—	~~MC_OMP08~~		—				X				
9	MC_OMP09		17/11/25				X				
10	MC_OMP10		19/11/25				X				
11	MC_OMP11		17/11/25				X				
12	WC_OMP01		"				X				
13	WC_OMP02		"				X				
14	~~WC_OMP03~~ ✓		18/11/25				X				
15	WC_OMP04_DUCKDAM		"				X				
16	~~WC_OMP05~~ ✓		"				X				
17	COCKPIT_SW01		18/11/25				X				
18	FRE_TAP1		19/11/25					X			
19	FRE_TAP2	↓	19/11/25				X				
Total	~~20~~ 19										

Subcontract / Forward Lab / Split WO: Envirolab
Lab / Analysis: [illegible]
Relinquished Date: 27/11/25
WO: [illegible]

ENVIROLAB Envirolab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200
Job No: 396838
Date Received: 28/11/25
Time Received: 1710
Received By: AB
Temp: Cool/Ambient 6°
Cooling: Ice/Icepack
Security: Intact/Broken/None

Environmental Division
Sydney
Work Order Reference
ES2537583

Telephone : + 61-2-8784 8555

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	Sampler Name: Michelle Agnew	Signature: M Agnew	Date: 21/11/25

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature: ND	Date: 24/11/25
Of:	Time:	Date/Time:	Of: ALS	Time: 0845
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: ____
Checked by: ____

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Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address: 277-289 Woodpark Road. Smithfield
Contact: Sample Receipt
Phone:

Job Number:	C17776	Purchase Order:	
Project Name:	Norfolk DSI	Quote No:	
Sampled By:		Turn Around Time:	
Project Manager:		Page:	2 of 5
Email Report To:	michelle.agnew@senversa.com.au	Phone/Mobile:	

Sample Information					Container Information		Analysis Required												
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	PFAS standard	PFAS		Email Analysis Request							HOLD	Comments: e.g. Highly contaminated sample: hazardous materials present: trace LORs etc.
20	DEPOT_TAP1	WATER	17/11/25					X											
21	DEPOT_TANK1		"				X												
22	DEPOT_TANK2		"				X												
23	DEPOT_TANK3		"				X												
24	A_TAP1		17/11/25				X	X											
25	AIRPORT BORE		"				X												
26	PWS_HEAD_DAM		19/11/25				X												
27	PWS_HEAD_TOILET		"				X												
28	PWS_BUMBORA_TOILET		"				X												
29	IDO13_BORE		17/11/25				X												
30	IDO14_BORE		"				X												
31	IDO15_BORE		20/11/25				X												
32	IDO16_BORE		17/11/25				X												
33	PWS_HOSP_TAP1		18/11/25					X											
34	PWS_HOSP_TAP3							X											
35	PWS_HOSP_TAP4							X											
36	PWS_HOSP_TAP5							X											
37	PWS_HOSP_TAP6							X											
38	PWS_HOSP_TANK1							X											
39	A_TAP2		17/11/25					X											396838 25/11/25 13.
Total		20																	

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name: Michelle Agnew
Signature: MAgnew
Date: 21/11/25

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

23 (54)

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Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address: 277-289 Woodpark Road, Smithfield
Contact: Sample Receipt
Phone:

Job Number:	C17776	**Purchase Order:**	
Project Name:	Norfolk DSI	**Quote No:**	
Sampled By:		**Turn Around Time:**	
Project Manager:		**Page:**	3 of ~~5~~ 5
Email Report To:	michelle.agnew@senversa.com.au	**Phone/Mobile:**	

Sample Information					Container Information		Analysis Required											
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	TRAS standard	PFAS		Email Analysis Request							HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
✓ 40	A_TAP316A	Water	17/11/25					X										
✓ 41	A_TAP5		"					X										
✓ 42	A_TAP4		19/11/25					X										
✓ 43	A_TAP5		"					X										
✓ 44	WC01		18/11/25					X										
✓ 45	WC02	↓	18/11/25					X										
✓ 46	WC_OMPOW_SD.	SED.	19/11/25				X											
✓ 47	FRE_TAP6	Water	"					X										
✓ 48	~~ELEC~~ ELEC_TAP1		"					X										
✓ 49	WASTE_TAP1		20/11/25															
✓ 50	COUNCIL_TAP1	↓																
✓ 51	1D008_SS1	SOIL																
✓ 52	1D008_SS2																	
✓ 53	~~1D008_TOTAL~~																	
✓ 54	~~1D008~~A_TRUCKFILL_SS2																	
✓ 55	A_TRUCKFILL_SS1	↓	↓															
✓ 56	BALL_SS3	& SOIL	21/11/25															396835
✓ 57	BALL_SS4	↓	"															28/11/25
✓ 58	BALL_SS5		"															
✓ 59	BALL_SD1	SED	"															
Total	15+																	

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name: Michelle Agnew **Signature:** MAgnew **Date:** 21/11/25

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature: MS	Date: 24/11/25
Of:	Time:	Date/Time:	Of: NLS	Time: 0845
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic;
V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic;
F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____ MD

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory:
Address:
Contact:
Phone:

Job Number:	C17776	**Purchase Order:**	
Project Name:	Norfolk DSI	**Quote No:**	
Sampled By:		**Turn Around Time:**	
Project Manager:		**Page:**	4 of ~~4~~ 5
Email Report To:	michelle.agnew@senversa.com.au	**Phone/Mobile:**	

	Sample Information				Container Information		Analysis Required											
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	~~PFAS~~ standard	PFAS		Email Analysis request						Send to Envirolab	HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
60	QC100	SED	19/11/25														X	
61	QC101	WATER	20/11/25				X											
62	QC102	"	"				X											
63	QC103	"	"				X											
64	QC104	"	"															
65	QC105	"	"															
~~66~~	~~QC106~~	~~"~~	~~"~~															
1	QC200	SED	19/11/25													X		
2	QC201	WATER	20/11/25													X		
3	QC202	"	"													X		
4	QC203	"	"													X		
5	QC204	"	"													X		
6	QC205	"	"													X		
—	~~QC206~~	~~"~~	~~"~~													X		
66	QC500	WATER	20/11/25														X	~~PFAS~~ PFAS RIN
67	QC300	"	20/11/25															
—	~~WATER_STD~~																	
68	BALL_SW1	water	21/11/25															396835 28/11/25 AB
Total	14																	

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	**Sampler Name:** michelle Agnew	**Signature:** mAgnew	**Date:** 21/11/25

Relinquished By:		**Method of Shipment (if applicable):**	**Received by:**	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address:
Contact:
Phone:

Job Number:	C17776	Purchase Order:	
Project Name:	Norfolk DSI	Quote No:	Senversa National
Sampled By:	MA, HD	Turn Around Time:	std
Project Manager:	Michelle Agnew	Page:	5 of 5
Email Report To:	michelle.agnew@senversa.com.au	Phone/Mobile:	0448910424

Lab ID	Sample ID	Matrix *	Date	Time	Container Information: Type / Code	Container Information: Total Bottles	Analysis Required: HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; trace LORs etc.
69	BWC_COMP04_SD	SOIL	19/11/25					
70	ID008_SS1		20/11/25					
71	ID008_SS1		20/11/25					
72	QC100		19/11/25					
~~73~~	QC200		"					
74	A_TRUCKFILL_SS1		20/11/25					
75	A_TRUCKFILL_SS2		"					
76	BALL_SS4		21/11/25					
77	BALL_SS5		"					
78	BALL_SS3	✓	"					
79	BALL_SD1		"					
								396838 28/11/25 TB
Total								

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	Sampler Name: Michelle Agnew	Signature: MAgnew	Date: 21/11/25

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature: NO	Date: 24/11/25
Of:	Time:	Date/Time:	Of: AV	Time: 0800
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

Jack Clifton

From: Andrew Wotherspoon
Sent: Tuesday, 25 November 2025 9:23 AM
To: Jack Clifton
Cc: Samples Sydney
Subject: RE: [EXTERNAL] - Samples sent from Norfolk Island
Attachments: Import Permit - Soil and Water Samples 2024-09-24_10-58-45-AM (1).pdf

Apologies Jack, following on from this email, Michelle has mentioned the following for samples being sent to Envirolab using the attached permit -

- Attached is the Envirolab import permit. Please send the following samples to Envirolab:
- QC200, QC201, QC202, QC203, QC304, QC205

From my understanding, Envirolab are the same biosecurity as us so hoping there's no issues with this but let me know and I can certainly assist.

Kind Regards,

Andrew Wotherspoon
Client Services Officer, Environmental
Sydney, NSW

O: +61 2 8784 8555
D: +61 2 8784 8514
andrew.wotherspoon@alsglobal.com
277-289 Woodpark Road
Smithfield NSW 2164 AUSTRALIA

alsglobal.com

396838
28/11/25
AB

senversa

396838
28/11/25

CUSTOMS DECLARATION

SENDER'S NAME: Senversa Pty Ltd

ADDRESS: Level 6, 15 William Street, Melbourne VIC 3000

RECEIVER'S NAME: AUSTRALIAN LABORATORY SERVICES

ADDRESS: [redacted]
ALS Environmental
277-289 Woodpark Road
SMITHFIELD NSW 2164

RECEIVER'S CONTACT NAME: Scott James

RECEIVER'S CONTACT PHONE NO.: +61-2-8784-8555

FULL DESCRIPTION OF GOODS: Environmental Samples for Analysis

PURPOSE FOR SENDING: Analytical Testing (Environmental)

VALUE FOR CUSTOMS PURPOSES ONLY: $39 AUD

* **NUMBER OF PACKAGES:** 2

* **TOTAL WEIGHT:**

* **CONSIGNMENT NOTE NUMBER:** 081-5514-5506. Airway Bill

COURIER COMPANY: Burnt Pine Travel

BIOSECURITY ENTRY NUMBER:

I declare the above information to be true and correct to the best of my knowledge.

Signed: Michelle Agnew **Dated:** 21/11/2025.

senversa

CUSTOMS DECLARATION

SENDER'S NAME: Senversa Pty Ltd

ADDRESS: Level 6, 15 William Street, Melbourne VIC 3000

RECEIVER'S NAME: AUSTRALIAN LABORATORY SERVICES

ADDRESS: [redacted]
ALS Environmental
277-289 Woodpark Road
SMITHFIELD NSW 2164

RECEIVER'S CONTACT NAME: Scott James

RECEIVER'S CONTACT PHONE NO.: +61-2-8784-8555

FULL DESCRIPTION OF GOODS: Environmental Samples for Analysis
water: approx. 80 20ml plastic jars.
Soil: 11 plastic jars

PURPOSE FOR SENDING: Analytical Testing (Environmental)

VALUE FOR CUSTOMS PURPOSES ONLY: $39 AUD

* **NUMBER OF PACKAGES:** 2

* **TOTAL WEIGHT:**

* **CONSIGNMENT NOTE NUMBER:** 081 - 5514 - 5506. (Airway Bill)

COURIER COMPANY: Burnt Pine Travel

BIOSECURITY ENTRY NUMBER:

I declare the above information to be true and correct to the best of my knowledge.

Signed: michelle Agnew **Dated:** 21/11/2025.

SUPPLIER'S DECLARATION:
subject to Permit 0009235853, section 1.1 condition f), I declare the goods meet the following conditions:
1. have not been sourced or sampled from waste collection or waste treatment facilities (human and/or animal), intensive animal production facilities, farm sites and/or aquiculture facilities.
2. are free from visible seed, human, animal and plant debris and other non-commodity biosecurity risk material.

signed: michelle agnew. michelle agnew 21/11/2025.

Australian Government

Department of Agriculture, Fisheries and Forestry

Permit to import conditionally non-prohibited goods

This permit is issued under *Biosecurity Act 2015* Section 179 (1)

Permit: 0009235853

Valid for: multiple consignments between 23 August 2024 and 23 August 2028

This permit is issued to: Australian Laboratory Services Pty Ltd

277/289 Woodpark Road
Smithfield NSW 2164
AUSTRALIA

Attention: Mr Scott James

This permit is issued for the import of Biological products (Non-standard goods).

Exporter details:	Various exporters
Country of export:	Various countries

This permit includes the following good(s). Refer to the indicated page for details of the permit conditions:

1. Soil and water samples		
Country of origin:	Various countries	
Permit Conditions:	Environmental samples for laboratory analysis, culture and isolation not permitted	Page 4
2. Animal fluids and tissues		
Country of export:	Various countries	
Country of origin:	Various countries	
Permit Conditions:	Animal fluids and tissues (excluding reproductive material) from species, other than those excluded	Page 8
3. Laboratory material		
Country of origin:	Various countries	
Permit Conditions:	Laboratory materials for in vitro use only	Page 11
4. Microorganisms (including viruses)		
Country of export:	Various countries	
Country of origin:	Various countries	
Permit Conditions:	Standard laboratory microorganisms and infectious agents (and derivatives)	Page 14
5. Soil and water samples		

This permit is granted subject to the requirement that fees determined under section 592(1) are paid.

James Teale
Subdelegate of the Director of Biosecurity

Date: 23 August 2024

T +61 2 6272 3933
F +61 2 6272 5161
70 Northbourne Avenue
Canberra City ACT 2601
GPO Box 858
Canberra ACT 2601
agriculture.gov.au
ABN 34 190 894 983

Australian Government
Department of Agriculture, Fisheries and Forestry

Permit to import conditionally non-prohibited goods

This permit is issued under *Biosecurity Act 2015* Section 179 (1)

Permit: 0009431147

Valid for: multiple consignments between 17 October 2024 and 17 October 2029

This permit is issued to: Envirolab Services Pty Ltd
Ground Floor Organic Laboratory Area
12 Ashley Street
Chatswood NSW 2067
AUSTRALIA

Attention: Mr Matthew Mansfield

This permit is issued for the import of Biological products (Standard goods).

Exporter details:	Various exporters

This permit includes the following good(s). Refer to the indicated page for details of the permit conditions:

1. Soil and water samples		
End use:	In-vitro	
Country of export:	Various countries	
Country of origin:	Various countries	
Permit Conditions:	Environmental samples for laboratory analysis, culture and isolation not permitted	Page 3

NOTE: Where a good has more than one set of permit conditions please read each set to determine which set of permit conditions applies to a specific consignment.

---------- **End of commodity list** ----------

This permit is granted subject to the requirement that fees determined under section 592(1) are paid.

Sarah Jeffress
Subdelegate of the Director of Biosecurity

Date: 24 September 2024

Important information about this permit and the import of goods

Note: This permit covers Department of Agriculture, Fisheries and Forestry import conditions. It is the permit holder's responsibility to ensure all legal requirements relating to the goods described in this permit are met. While the permit holder should rely on their own inquiries, the following information is provided to assist the permit holder in meeting legal obligations in relation to the importation of the goods described in this permit.

Information about this permit

Authority to import

The permit holder is authorised to import the goods described in this permit subject to the listed conditions specified in this permit.

Compliance with permit conditions and assessment and management of biosecurity risk

All imports are subject to biosecurity control and may be subject to biosecurity inspection on arrival to determine compliance with the listed permit conditions and to assess the level of biosecurity risk associated with the goods. Imports that do not comply with the import conditions specified in the permit may present an unacceptable level of biosecurity risk and may be subject to biosecurity measures that may include treatment, export or destruction at the permit holder's expense or forfeited to the Commonwealth.

Additionally, non-compliance with import permit conditions may constitute an offence or contravention of a civil penalty provision under section 187 of the *Biosecurity Act 2015*.

Change of import conditions

The Director of Biosecurity may, in accordance with section 180 of the *Biosecurity Act 2015* vary or revoke the conditions on a permit or impose further conditions.

General information about importing goods

Notification of import

Notification of the import must be provided to the Department of Agriculture, Fisheries and Forestry for all imported goods other than goods imported as accompanied baggage or goods imported via the mail and not prescribed under *the Customs Act 1901*, or where other exceptions specified in the *Biosecurity Regulation 2016* apply. Notification must be provided in accordance with section 120 of the *Biosecurity Act 2015* and Part 1 of Chapter 2 of the *Biosecurity Regulation 2016*. Please refer to 'Sending your goods to Australia' on the Department of Agriculture, Fisheries and Forestry website.

Provision of required documentation

It is recommended that all required documentation accompanies each consignment. Required documentation must be presented to the Department of Agriculture, Fisheries and Forestry for assessment. Airfreight or mail shipments should have all required documentation securely attached to the outside of the package, and clearly marked "Attention Department of Agriculture, Fisheries and Forestry" Documentation may include the permit (or permit number), government certification and invoice.

If the product description on the permit varies from the identifying documentation provided, the goods will not be released from biosecurity control unless evidence is provided to the biosecurity officer that the permit covers the goods in the consignment.

Any documentation provided must comply with the Department of Agriculture, Fisheries and Forestry's minimum documentation requirements policy.

Non-commodity cargo clearance

In addition to the conditions for the goods being imported, non-commodity biosecurity risks are assessed including container cleanliness, packaging and destination concerns, and may be subject to inspection and treatment on arrival. Please refer to the Non-Commodity Cargo Clearance BICON case for further information.

Fees

Fees are payable to the Department of Agriculture, Fisheries and Forestry for certain services (see the *Biosecurity Charges Imposition (General) Regulation 2016*, Part 2 of Chapter 9 of the *Biosecurity Regulation 2016* and Part 3 of Chapter 11 of the *Biosecurity Act 2015*). Detail on how the department applies fees and levies may be found in the Charging guidelines.

Compliance with other regulatory provisions

Goods imported into Australia may be subject to regulatory requirements under other legislation. It is the permit holder's responsibility to identify and ensure they have complied with all requirements of any other regulatory agency or advisory body prior to and after importation.

Permit conditions

It is the importer's responsibility to ensure that the following permit conditions are met in relation to each consignment. Where more than one set of permit conditions is shown for a good please read each set of conditions to determine which applies to a specific consignment.

1. Environmental samples for laboratory analysis, culture and isolation not permitted

This section contains permit conditions for the following commodity (or commodities):

1.	Soil and water samples

1.1. Biosecurity Pathway

Import conditions prior to arrival in Australian territory

a. The goods must be:

1. Soil samples (including, but not limited to, subsoil, aquatic or marine soil, sediments, silt)
2. Water samples
3. Dust samples
4. Mining slurry samples
5. Inorganic material contaminated with soil and/or water.

The goods may also be imported as cores, swabs, and/or filters used on the listed sample types where all conditions can be met.

b. The samples must not be sourced from waste collection or waste treatment facilities (human and/or animal), intensive animal production facilities, farm sites, horticultural sites and/or aquaculture facilities.

c. The imported goods must be free from visible seed, human, animal and plant debris and other biosecurity risk material.

d. Liquid or water samples must be imported in a volume less than or equal to 1 L or 1 kg per individually packaged unit.

e. Solid samples must be imported in units less than or equal to 10 L or 10 kg per individually packaged unit.

f. The goods must meet the following import conditions.

To demonstrate compliance with this requirement you must present the following on a Manufacturer's declaration or Supplier's declaration:

A statement that the goods:

1. have not been sourced or sampled from waste collection or waste treatment facilities (human and/or animal), intensive animal production facilities, farm sites and/or aquaculture facilities
2. are free from visible seed, human, animal and plant debris and other non-commodity biosecurity risk material.

Import conditions after arrival in Australian territory

g. The goods are for use at approved arrangement sites class 5. The level of containment must be BC level 1 or higher.

h. The goods must only be directed to AA sites with current approval from the Department of Agriculture, Fisheries and Forestry as a class 5 approved arrangement site at the time of importation and until such time that all imported material and its derivatives are removed for disposal or export.

i. The goods and their derivatives shall not be removed from these sites, except for treatment, disposal or export, without the prior approval of the Director of Biosecurity.

j. **Post entry/end use conditions**

1. The goods must not be exposed to or used in animals, plants, microorganisms, cell cultures or the environment, and must not be used in or on humans.
2. The goods must not be used for culture or isolation of microorganisms and infectious agents, or for the synthesis of replication-competent microorganisms or infectious agents.
3. Microorganisms or infectious agents must not be cultured or isolated from the materials imported under the permit conditions in this permit case.
4. The goods must be labelled with the end use conditions on the smallest individually packaged unit.
   OR
   The smallest individually packaged unit must be accompanied by documentation stating the end use conditions. This documentation must be provided to the end user of the goods.

Where applicable, the importer or end user must comply with:

1. International (e.g. International Air Transport Association) and domestic requirements concerning the safe handling, transport and labelling of biological material
2. AS/NZS 2243 Safety in Laboratories standards
3. Office of the Gene Technology Regulator (OGTR) requirements
4. The Security Sensitive Biological Agents (SSBA) regulatory scheme.

Records of treatment, disposal and release of all imported items must be retained by the AA site for Department of Agriculture, Fisheries and Forestry audit purposes.

k. The goods may be released from biosecurity containment for further in vitro analysis if the samples are subjected to any of the sample preparation or analysis techniques listed below:

1. One or a combination of the following:
   1.1. Solid phase extraction (SPE), liquid-liquid extraction (LLE) or solid-liquid extraction (SLE) using organic solvents such as hexane, isooctane, carbon tetrachloride, chloroform, tetrahydrofuran, dichloromethane (methylene dichloride), acetone, isopropanol, methanol, ethyl acetate, and acetonitrile (methyl cyanide, cyanomethane).
   1.2. Atomic absorption spectrometry
   1.3. The use of a flame atomiser
   1.4. Induction coupled plasma analysis
   1.5. Gas chromatography
   1.6. Liquid chromatography

1.7. Mass spectrometry
1.8. Optical emission spectrometry
1.9. Thermal, electron or chemical ionisation
1.10. Thermoluminescence dating in which the sample material is progressively heated from 110°C to at least 350°C (excludes low temperature thermoluminescence)
1.11. High temperature combustion (>600°C)

2. Sample preparation which includes autoclaving at a minimum of 121°C and 15psi for 30 minutes.
3. Complete acid digestion using one or a combination of the following: concentrated hydrochloric (HCl 32-37%/~12M), nitric (HNO3 65-70%/~16M), perchloric (HClO4 ~70%/11M), sulphuric (H2SO4 95- 98%/~18M) and hydrofluoric (HF 40-48%/~27M) acid in:
   3.1. A microwave digestion system at ≥150°C and ≥ 15psi for at least 20 minutes; or
   3.2. A heating block at a minimum of 100°C for at least 30 minutes.
4. Acidification at less than or equal to pH 2.0 throughout the final sample for at least 30 minutes.
5. Alkalisation at greater than or equal to pH 10 throughout the final sample for at least 30 minutes.

l. Genetic material extracted from imported samples may be released from biosecurity containment provided all of the following conditions are met:

1. The genetic material must be extracted using a standard laboratory procedure that lyses cells, and degrades lipids, proteins and other molecules, and results in a purified DNA and/or RNA product that is unable to replicate.
2. Individual sample sizes must be 2 mL or 2 g or less and in sealed containers.
3. Genetic material removed from AA site containment must be used for *in vitro* analytical procedures only (e.g. PCR, sequencing, Northern/Southern blotting).
4. Genetic material must not be used for the synthesis of replication-competent microorganisms, infectious agents, or homologues.
5. Genetic material and derivatives must not be directly or indirectly exposed to animals.
6. Any sample remnants, sample containers and disposable equipment that have contacted the samples must be subjected to a Department of Agriculture, Fisheries and Forestry approved treatment method prior to disposal OR the genetic material, its containers and disposable equipment that has contacted the genetic material must be treated as "potentially contaminated wastes" as described in section 12 of AS/NZS 2243.3 Safety in Laboratories Part 3: Microbiological safety and containment.

m. The goods may be treated using one of the following treatment methods. After treatment, the goods may then be released from biosecurity control.

Soil samples (and other non-liquid goods)

1. dry heat treatment at 160°C for 2 hours (sample must not exceed 500g in weight) (applied in the current AA or AA class 12.3 or 4.1), or
2. heat treatment in an autoclave at 121°C, 103kPa (15 psi) for 30 minutes (applied in the current AA or AA class 8.3), or
3. heat treatment in an autoclave at 134°C, 103kPa (15 psi) for 4 minutes (applied in the current AA or AA class 8.3), or
4. ionising radiation to a level that achieves a minimum absorbed dose of 50kGy (applied in AA class 4.2).

Water samples (and other liquid goods)

1. heat treatment in an autoclave at 121°C, 103kPa (15 psi) for 30 minutes (applied in current AA or AA class 8.3), or
2. heat treatment in an autoclave at 134°C, 103kPa (15 psi) for 4 minutes (applied in current AA or AA class 8.3), or
3. heat treatment at a minimum core temperature of 100°C for at least 30 minutes (applied in the current AA or AA class 12.3 or 4.1), or
4. ionising radiation to a level that achieves a minimum absorbed dose of 50kGy (applied in AA class 4.2).
5. addition of sodium hypochlorite to water to a final chlorine concentration of 2,500 ppm, stirring the contents and allowing a standing time of 2 hours before disposal into the sewerage system.
6. addition of calcium hypochlorite to water to a final chlorine concentration of 2,500 ppm, stirring the contents and allowing a standing time of 2 hours before disposal into the sewerage system.

n. On completion of work all imported materials and the direct or indirect derivatives thereof must be disposed of by treatment methods (as listed) or other methods approved in writing by the Director of Biosecurity.

Additional information

o. **Commercial administrative conditions**
Documents must be provided with each consignment which:

1. identify the consignment (if non-personal) e.g. entry number
2. identify all goods being imported as part of this consignment e.g. invoice or waybill or importer's manifest
3. describe the goods being imported (where not clear).
   e.g. 1: Product XRab = Purified protein derived from rabbits
   e.g. 2: Product AX = Synthetic antibiotic
   e.g. 3: Comte = Cheese.

p. Under the Biosecurity Charges Imposition (General) Regulation 2016 and Chapter 9, Part 2 of the Biosecurity Regulation 2016, fees are payable to the Department of Agriculture, Fisheries and Forestry for all services. Detail on how the department applies fees and levies may be found in the Charging guidelines.

q. In addition to the conditions for the goods being imported, non-commodity concerns must be assessed including container cleanliness, packaging and destination concerns, and may be subject to inspection and treatment on arrival. Please refer to the Non-Commodity Cargo Clearance BICON case for further information.

---------- **End of permit conditions** ----------

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

DATA QUALITY ASSESSMENT SUMMARY

Report Details

Envirolab Report Reference	**396838**
Client ID	Senversa Pty Ltd
Project Reference	C17776 Norfolk DSI
Date Issued	05/12/2025

QC DATA

All laboratory QC data was within the Envirolab Group's specifications.

HOLDING TIME COMPLIANCE EVALUATION

All preservation / holding times (based on AS/ASPHA/ISO/NEPM/USEPA reference documents and standards) are compliant.

Certain analyses have had their recommended technical holding times elongated by filtering and/or freezing on receipt at the laboratory (e.g. BOD, chlorophyll/Pheophytin, nutrients and acid sulphate soil tests).

COMPLIANCE TO QC FREQUENCY (NEPM)

Internal laboratory QC rate complies with NEPM requirements (LCS/MB/MS 1 in 20, Duplicates 1 in 10 samples). Note, samples are batched together with other sample consignments in order to assign QC sample frequency.

QC Evaluation

Duplicate(s) was performed as per NEPM frequency	✓
Laboratory Control Sample(s) were analysed with the samples received	✓
A Method Blank was performed with the samples received	✓
Matrix spike(s) was performed as per NEPM frequency (Not Applicable for Air samples)	✓

Refer to Certificate of Analysis for all Quality Control data.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Senversa Pty Ltd
Attention	Michelle Agnew

Sample Login Details

Your reference	C17776 Norfolk DSI
Envirolab Reference	396838
Date Sample Received	28/11/2025
Date Instructions Received	01/12/2025
Date Results Expected to be Reported	05/12/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Sediment, 5 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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

Sample ID	PFAS in Soils Short	PFAS in Waters Short
QC200	✓	
QC201		✓
QC202		✓
QC203		✓
QC204		✓
QC205		✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

We acknowledge receipt of your samples and Purchase Order (PO) (if provided). If a PO includes your terms & conditions, Envirolab hereby expressly rejects and will not be bound by any external or third-party terms and conditions, including those referenced or attached to a PO.

All services to be performed by Envirolab will be governed exclusively by Envirolab's General Terms and Conditions attached to this acknowledgement (Envirolab Terms) via hyperlink or found on our websites.

If you do not object in writing within two (2) business days of the date of this acknowledgement, you will be deemed to have accepted the Envirolab Terms. In addition, your provision of further instructions, additional samples, payment of any invoice, or acceptance of services or results from Envirolab will constitute acceptance of the Envirolab Terms. For clarity, Envirolab's commencement or continuation of work following receipt of the PO is performed solely under the Envirolab Terms and does not constitute acceptance of any external terms. All rights are expressly reserved.

QUALITY CONTROL REPORT

Work Order	: **ES2537238**	Page	: 1 of 9
Amendment	: **1**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025
Order number	: ----	Date Analysis Commenced	: 04-Dec-2025
C-O-C number	: ----	Issue Date	: 24-Dec-2025
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 6		
No. of samples analysed	: 5		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	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: **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: 7054345)									
ES2537238-001	WC_BIOTA1	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	1	3	59.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	2	µg/kg	<2	<2	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 7099301)									
ES2537238-004	ID008_BIOTA2	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	1	1	0.0	No Limit
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	1	µg/kg	<1	<1	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1 (2)*	µg/kg	<2	<2	0.0	No Limit
		EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	2	µg/kg	<2	<2	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 7054345)									
ES2537238-001	WC_BIOTA1	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

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: 7054345) - continued									
ES2537238-001	WC_BIOTA1	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: 7099301)									
ES2537238-004	ID008_BIOTA2	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: 7054345)									
ES2537238-001	WC_BIOTA1	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: 7099301)									
ES2537238-004	ID008_BIOTA2	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: 7099301) - continued									
ES2537238-004	ID008_BIOTA2	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: 7054345)									
ES2537238-001	WC_BIOTA1	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: 7099301)									
ES2537238-004	ID008_BIOTA2	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: 7054345)									
ES2537238-001	WC_BIOTA1	EP231X: Sum of PFAS	----	1	µg/kg	1	3	100	No Limit
EP231P: PFAS Sums (QC Lot: 7099301)									
ES2537238-004	ID008_BIOTA2	EP231X: Sum of PFAS	----	1	µg/kg	1	1	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: **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: 7054345)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	2	µg/kg	<2	5 µg/kg	76.9	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	5 µg/kg	89.4	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	5 µg/kg	95.6	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	5 µg/kg	95.6	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	5 µg/kg	82.2	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	<1	5 µg/kg	94.3	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	1	µg/kg	<1	5 µg/kg	97.1	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1	µg/kg	<1	5 µg/kg	109	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7099301)								
EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	2	µg/kg	<2	5 µg/kg	93.3	70.0	130
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	5 µg/kg	83.8	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	5 µg/kg	100	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	5 µg/kg	88.0	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	5 µg/kg	103	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	<1	5 µg/kg	108	68.0	136
EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	1	µg/kg	<1	5 µg/kg	106	70.0	130
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	1	µg/kg	<1	5 µg/kg	113	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7054345)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	25 µg/kg	118	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1	µg/kg	<1	5 µg/kg	121	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	5 µg/kg	100	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	5 µg/kg	104	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	5 µg/kg	106	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	5 µg/kg	104	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	5 µg/kg	102	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	5 µg/kg	97.2	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1	µg/kg	<1	5 µg/kg	88.4	69.0	135
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	105	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7099301)								

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: 7099301) - continued								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	25 µg/kg	125	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	1	µg/kg	<1	5 µg/kg	111	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	<1	5 µg/kg	102	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	<1	5 µg/kg	103	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	<1	5 µg/kg	104	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	5 µg/kg	97.8	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	5 µg/kg	105	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	5 µg/kg	107	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	1	µg/kg	<1	5 µg/kg	105	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1	µg/kg	<1	5 µg/kg	86.8	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg	<2	12.5 µg/kg	107	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7054345)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1	µg/kg	<1	5 µg/kg	106	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2	µg/kg	<2	12.5 µg/kg	# 107	88.1	105
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	12.5 µg/kg	114	81.6	144
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	12.5 µg/kg	113	84.7	135
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	12.5 µg/kg	117	20.5	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	5 µg/kg	102	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	5 µg/kg	103	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7099301)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	1	µg/kg	<1	5 µg/kg	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	2	µg/kg	<2	12.5 µg/kg	# 118	88.1	105
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg	<2	12.5 µg/kg	114	81.6	144
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg	<2	12.5 µg/kg	117	84.7	135
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg	<2	12.5 µg/kg	117	20.5	150
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg	<1	5 µg/kg	108	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg	<1	5 µg/kg	105	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7054345)								

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: 7054345) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	5 µg/kg	117	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	5 µg/kg	110	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	5 µg/kg	115	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	5 µg/kg	97.4	93.4	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7099301)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg	<2	5 µg/kg	101	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg	<2	5 µg/kg	98.0	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg	<2	5 µg/kg	115	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg	<2	5 µg/kg	104	93.4	130
EP231P: PFAS Sums (QCLot: 7054345)								
EP231X: Sum of PFAS	----	1	µg/kg	<1	----	----	----	----
EP231P: PFAS Sums (QCLot: 7099301)								
EP231X: Sum of PFAS	----	1	µg/kg	<1	----	----	----	----

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: 7054345)							
ES2537238-003	ID008_BIOTA1	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	5 µg/kg	77.8	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	5 µg/kg	97.6	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	5 µg/kg	122	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	5 µg/kg	104	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	5 µg/kg	102	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	5 µg/kg	112	68.0	136
		EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	5 µg/kg	109	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	5 µg/kg	103	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7099301)							
ES2537238-006	ID008_BIOTA4	EP231X: Perfluoropropane sulfonic acid (PFPrS)	423-41-6	5 µg/kg	84.4	70.0	130
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	5 µg/kg	78.8	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	5 µg/kg	103	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	5 µg/kg	82.4	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	5 µg/kg	113	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	5 µg/kg	99.5	68.0	136

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: 7099301) - continued							
ES2537238-006	ID008_BIOTA4	EP231X: Perfluorononane sulfonic acid (PFNS)	68259-12-1	5 µg/kg	107	70.0	130
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	5 µg/kg	107	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7054345)							
ES2537238-003	ID008_BIOTA1	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	25 µg/kg	116	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	5 µg/kg	100	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	5 µg/kg	105	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	5 µg/kg	109	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	5 µg/kg	112	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	5 µg/kg	112	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	5 µg/kg	119	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	5 µg/kg	115	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	5 µg/kg	102	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	5 µg/kg	116	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	12.5 µg/kg	112	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7099301)							
ES2537238-006	ID008_BIOTA4	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	25 µg/kg	130	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	5 µg/kg	# Not Determined	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	5 µg/kg	111	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	5 µg/kg	95.2	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	5 µg/kg	110	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	5 µg/kg	96.0	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	5 µg/kg	111	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	5 µg/kg	105	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	5 µg/kg	102	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	5 µg/kg	76.0	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	12.5 µg/kg	101	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7054345)							
ES2537238-003	ID008_BIOTA1	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	5 µg/kg	121	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	12.5 µg/kg	95.2	88.1	105
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	12.5 µg/kg	113	81.6	144
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	12.5 µg/kg	103	84.7	135
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	12.5 µg/kg	94.0	20.5	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	5 µg/kg	109	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: 7054345) - continued							
ES2537238-003	ID008_BIOTA1	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	5 µg/kg	109	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7099301)							
ES2537238-006	ID008_BIOTA4	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	5 µg/kg	113	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	12.5 µg/kg	# 123	88.1	105
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	12.5 µg/kg	106	81.6	144
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	12.5 µg/kg	120	84.7	135
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	12.5 µg/kg	106	20.5	150
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	5 µg/kg	106	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	5 µg/kg	92.5	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7054345)							
ES2537238-003	ID008_BIOTA1	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	5 µg/kg	121	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	5 µg/kg	118	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	5 µg/kg	112	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	5 µg/kg	# 91.3	93.4	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7099301)							
ES2537238-006	ID008_BIOTA4	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	5 µg/kg	107	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	5 µg/kg	104	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	5 µg/kg	118	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	5 µg/kg	94.1	93.4	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2537238**	Page	: 1 of 5
Amendment	: **1**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025
Site	: ----	Issue Date	: 24-Dec-2025
Sampler	: Michelle Agnew Hollie Dunsten	No. of samples received	: 6
Order number	: ----	No. of samples analysed	: 5

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **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, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **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-7054345-002	----	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	107 %	88.1-105%	**Recovery greater than upper control limit**
EP231C: Perfluoroalkyl Sulfonamides	QC-7099301-002	----	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	118 %	88.1-105%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EP231B: Perfluoroalkyl Carboxylic Acids	ES2537238--006	ID008_BIOTA4	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231C: Perfluoroalkyl Sulfonamides	ES2537238--006	ID008_BIOTA4	**N-Methyl perfluorooctane sulfonamide (MeFOSA)**	31506-32-8	123 %	88.1-105%	**Recovery greater than upper data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	ES2537238--003	ID008_BIOTA1	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	91.3 %	93.4-130%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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							
HDPE Soil Jar (Biota-PP) WC_BIOTA1	**19-Nov-2025**	**04-Dec-2025**	----	----	**----**	----	----
HDPE Soil Jar (Biota-PP) ID008_BIOTA1, ID008_BIOTA3	**20-Nov-2025**	**04-Dec-2025**	----	----	**----**	----	----
HDPE Soil Jar (Biota-PP) ID008_BIOTA2, ID008_BIOTA4	**20-Nov-2025**	**22-Dec-2025**	----	----	**----**	----	----

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								
HDPE Soil Jar (EP231-PFOS-SP)								
WC_BIOTA1		**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**10-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
WC_BIOTA1		**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231-PFOS-SP)								
ID008_BIOTA1,	ID008_BIOTA3	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**10-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA1,	ID008_BIOTA3	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231-PFOS-SP)								
ID008_BIOTA2,	ID008_BIOTA4	**20-Nov-2025**	**23-Dec-2025**	19-May-2026	✓	**23-Dec-2025**	01-Feb-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA2,	ID008_BIOTA4	**20-Nov-2025**	**23-Dec-2025**	19-May-2026	✓	**24-Dec-2025**	01-Feb-2026	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
WC_BIOTA1		**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA1,	ID008_BIOTA3	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA2,	ID008_BIOTA4	**20-Nov-2025**	**23-Dec-2025**	19-May-2026	✓	**24-Dec-2025**	01-Feb-2026	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
WC_BIOTA1		**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA1,	ID008_BIOTA3	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA2,	ID008_BIOTA4	**20-Nov-2025**	**23-Dec-2025**	19-May-2026	✓	**24-Dec-2025**	01-Feb-2026	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
WC_BIOTA1		**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA1,	ID008_BIOTA3	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA2,	ID008_BIOTA4	**20-Nov-2025**	**23-Dec-2025**	19-May-2026	✓	**24-Dec-2025**	01-Feb-2026	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
WC_BIOTA1		**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA1,	ID008_BIOTA3	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**11-Dec-2025**	14-Jan-2026	✓
HDPE Soil Jar (EP231X)								
ID008_BIOTA2,	ID008_BIOTA4	**20-Nov-2025**	**23-Dec-2025**	19-May-2026	✓	**24-Dec-2025**	01-Feb-2026	✓

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	2	5	**40.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	5	**40.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	5	**40.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	5	**40.00**	**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.

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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2537238-AA**	Page	: 1 of 6
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 16:15
Order number	: ----	Date Analysis Commenced	: 04-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 11:59
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- 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*
Alex Rossi	Organic Chemist	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.

- Amendment (22/12/2025): This report has been amended following the request to add additional analysis EP231X PFAS Full Suite to samples 004 and 006 as requested by Michelle Agnew.
- Amendment (12/02/2026): This report has been amended following the request to organise spilt reports as requested by Michelle Agnew.
- 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	WC_BIOTA1	----	----	----	----
				Sampling date / time	19-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537238-001	--------	--------	--------	--------
					Result	----	----	----	----
Biota Sample Pre-Preparation									
ø Sample Description	----	-	--		plant	----	----	----	----
ø Weight of Sample Prepared	----	0.1	g		2.9	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	2	µg/kg		<2	----	----	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg		<1	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg		<1	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg		<1	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg		<1	----	----	----	----
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg		<1	----	----	----	----
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg		1	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg		1	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg		<2	----	----	----	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	1	µg/kg		<1	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg		<5	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg		<2	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg		<1	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg		<1	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg		<1	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg		<1	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg		<1	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg		<1	----	----	----	----

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	WC_BIOTA1	----	----	----	----
				Sampling date / time	19-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537238-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg		<2	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<1	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	2	µg/kg		<2	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	----	----	----	----
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**1**	----	----	----	----

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	WC_BIOTA1	----	----	----	----
				Sampling date / time	19-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537238-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231P: PFAS Sums - Continued									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	1	µg/kg		**1**	**----**	**----**	**----**	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**91.2**	**----**	**----**	**----**	**----**
13C8-PFOA	----	1	%		**84.5**	**----**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **BIOTA**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	50	130
13C8-PFOA	----	50	130

CERTIFICATE OF ANALYSIS

Work Order	: **ES2537238-AB**	Page	: 1 of 6
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 16:15
Order number	: ----	Date Analysis Commenced	: 04-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 11:59
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
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- Analytical Results
- Surrogate Control Limits

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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*
Alex Rossi	Organic Chemist	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.

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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.

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- 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	ID008_BIOTA1	ID008_BIOTA2	ID008_BIOTA3	ID008_BIOTA4	----
			Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2537238-003	ES2537238-004	ES2537238-005	ES2537238-006	--------
				Result	Result	Result	Result	----
Biota Sample Pre-Preparation								
ø Sample Description	----	-	--	plant	plant	plant	plant	----
ø Weight of Sample Prepared	----	0.1	g	2.1	0.9	2.0	3.6	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluoropropane sulfonic acid (PFPrS)	423-41-6	2	µg/kg	<2	<2	<2	<2	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	1	µg/kg	<1	<1	<1	<1	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	1	µg/kg	<1	<1	<1	<1	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	1	µg/kg	<1	<1	<1	<1	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	1	µg/kg	<1	<1	<1	<1	----
Perfluorooctane sulfonic acid (PFOS) - Linear	2795-39-3	1	µg/kg	<1	1	<1	<1	----
Perfluorooctane sulfonic acid (PFOS) - Branched	----	1	µg/kg	<1	<1	<1	<1	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	1	µg/kg	<1	1	<1	<1	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	2	µg/kg	<2	<2	<2	<2	----
Perfluorononane sulfonic acid (PFNS)	68259-12-1	1	µg/kg	<1	<1	<1	<1	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	5	µg/kg	<5	<5	<5	12	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	2	µg/kg	<2	<2	<2	21	----
Perfluorohexanoic acid (PFHxA)	307-24-4	1	µg/kg	2	<1	<1	3	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	1	µg/kg	1	<1	<1	<1	----
Perfluorooctanoic acid (PFOA)	335-67-1	1	µg/kg	3	<1	<1	<1	----
Perfluorononanoic acid (PFNA)	375-95-1	1	µg/kg	<1	<1	<1	<1	----
Perfluorodecanoic acid (PFDA)	335-76-2	1	µg/kg	<1	<1	<1	<1	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	1	µg/kg	<1	<1	<1	<1	----

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	ID008_BIOTA1	ID008_BIOTA2	ID008_BIOTA3	ID008_BIOTA4	----
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2537238-003	ES2537238-004	ES2537238-005	ES2537238-006	--------
					Result	Result	Result	Result	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorododecanoic acid (PFDoDA)	307-55-1	2	µg/kg		<2	<2	<2	<2	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	2	µg/kg		<2	<2	<2	<2	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	2	µg/kg		<2	<2	<2	<2	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	5	µg/kg		<5	<5	<5	<5	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	5	µg/kg		<5	<5	<5	<5	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	2	µg/kg		<2	<2	<2	<2	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	2	µg/kg		<2	<2	<2	<2	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	2	µg/kg		<2	<2	<2	<2	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	1	µg/kg		<1	<1	<1	<1	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	1	µg/kg		<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	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	2	µg/kg		<2	<2	<2	<2	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	2	µg/kg		<2	<2	<2	<2	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	2	µg/kg		<2	<2	<2	<2	----
EP231P: PFAS Sums									
^ **Sum of PFAS**	----	1	µg/kg		**6**	**1**	<1	**36**	----

Analytical Results

Sub-Matrix: BIOTA (Matrix: BIOTA)				Sample ID	ID008_BIOTA1	ID008_BIOTA2	ID008_BIOTA3	ID008_BIOTA4	----
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2537238-003	ES2537238-004	ES2537238-005	ES2537238-006	--------
					Result	Result	Result	Result	----
EP231P: PFAS Sums - Continued									
^ **Sum of PFHxS and PFOS**	355-46-4/1763-23-1	1	µg/kg		<1	**1**	<1	<1	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	1	%		**93.6**	**99.4**	**102**	**106**	**----**
13C8-PFOA	----	1	%		**88.3**	**91.5**	**94.6**	**98.0**	**----**

Surrogate Control Limits

Sub-Matrix: **BIOTA**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	50	130
13C8-PFOA	----	50	130

Location Name	Date	type code - hidden	PFAS Standard LOR	PFAS: low level	HOLD	Send to Envirolab	Comments
A_TAP1	17/11/2025	SW		X			
A_TAP12	17/11/2025	SW			X		
A_TAP15	17/11/2025	SW		X			
A_TAP16A	17/11/2025	SW			X		
A_TAP4	19/11/2025	SW		X			
A_TAP5	19/11/2025	SW		X			
A_TRUCKFILL_SS1	20/11/2025	SOIL	X				
A_TRUCKFILL_SS2	20/11/2025	SOIL			X		
AIRPORT_BORE	17/11/2025	SW	X				Elevated PFAS
BALL_SED01	21/11/2025	SED			X		
BALL_SW01	21/11/2025	SW			X		
BALL_SS1	21/11/2025	SOIL	X				
BALL_SS2	21/11/2025	SOIL	X				
BALL_SS3	21/11/2025	SOIL	X				
Cockpit_SW01	18/11/2025	SW	X				
COUNCIL_TAP	20/11/2025	SW		X		UPDATED COC	
DEPOT_TANK1	17/11/2025	SW	X				
DEPOT_TANK2	17/11/2025	SW	X				
DEPOT_TANK3	17/11/2025	SW			X		
DEPOT_TAP	17/11/2025	SW		X			
ELEC_TAP1	19/11/2025	SW		X			
FRE_TAP1	19/11/2025	SW		X			
FRE_TAP2	19/11/2025	SW	X				
FRE_TAP6	19/11/2025	SW		X			
ID008_SS1	20/11/2025	SOIL			X		
ID008_SS2	20/11/2025	SOIL	X				
ID013_BORE	17/11/2025	GW	X				
ID014_BORE	17/11/2025	SW	X				
ID016_BORE	17/11/2025	GW	X				
ID019_BORE	20/11/2025	SW	X				
MC_OMP01	20/11/2025	SW	X				
MC_OMP01	17/11/2025	SW			X		
MC_OMP02	20/11/2025	SW	X				
MC_OMP03	20/11/2025	SW	X				
MC_OMP04A	20/11/2025	SW	X				
MC_OMP05A	20/11/2025	SW	X				
MC_OMP06	20/11/2025	SW	X				
MC_OMP07A	20/11/2025	SW	X				
MC_OMP09	17/11/2025	SW	X				
MC_OMP10	19/11/2025	SW	X				
MC_OMP11	17/11/2025	SW	X				
PWS_BUMBORA_TOILET	19/11/2025	SW			X		
PWS_HEAD_DAM	19/11/2025	SW	X				

7:45pm
Andrew
28/11/25

Environmental Division
Sydney
Work Order Reference
ES2537238

Telephone : +61-2-8784 8555

PWS_HEAD_TOILET	19/11/2025	SW			X		
PWS_HOSP_TANK1	18/11/2025	SW			X		
PWS_HOSP_TAP1	18/11/2025	SW		X			
PWS_HOSP_TAP3	18/11/2025	SW		X			
PWS_HOSP_TAP4	18/11/2025	SW		X			
PWS_HOSP_TAP6	18/11/2025	SW		X			
PWS_HOSP_TAP8	18/11/2025	SW		X			
WASTE_TAP1	20/11/2025	SW		X			
WC_OMP01	17/11/2025	SW	X				
WC_OMP02	17/11/2025	SW	X				
WC_OMP03	18/11/2025	SW	X				
WC_OMP04_DUCKDAM	19/11/2025	SED	X				
WC_OMP04_DUCKDAM	18/11/2025	SW	X				
WC_OMP05	18/11/2025	SW	X				
WC01	18/11/2025	SW		X			
WC02	18/11/2025	SW		X			
WW11_DAM	20/11/2025	SW	X				Elevated PFAS
WW11_DAM	17/11/2025	SW			X		Elevated PFAS
WC_BIOTA1	19/11/2025	BIOTA	X				water hyacinth
WC_BIOTA2	19/11/2025	BIOTA			X		Knot weed
ID008_BIOTA1	20/11/2025	BIOTA	X				silverbeet
ID008_BIOTA2	20/11/2025	BIOTA			X		parsley
ID008_BIOTA3	20/11/2025	BIOTA	X				zuccini
ID008_BIOTA4	20/11/2025	BIOTA			X		tomato
QC100		SOIL	X				
QC101		SW	X				
QC102		SW	X				
QC103		SW	X				
QC104		SW	X				
QC105		SW	X				
QC200		SOIL				X	
QC201		SW				X	
QC202		SW				X	
QC203		SW				X	
QC204		SW				X	
QC205		SW				X	
QC400		Water		X			
QC500		Water		X			

1 2 3 4 5 6

QUALITY CONTROL REPORT

Work Order	: **ES2537583**	Page	: 1 of 19
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025
Order number	: ----	Date Analysis Commenced	: 03-Dec-2025
C-O-C number	: ----	Issue Date	: 15-Dec-2025
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 68		
No. of samples analysed	: 53		

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*
Alex Rossi	Organic Chemist	Sydney Inorganics, Smithfield, NSW
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, 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: **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: 7064172)									
ES2537583-052	ID008_SS2	EA055: Moisture Content	----	0.1	%	27.8	28.6	2.8	0% - 20%
ES2538662-002	Anonymous	EA055: Moisture Content	----	0.1	%	88.1	88.0	0.1	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 7071955)									
EB2543165-002	Anonymous	EA055: Moisture Content	----	0.1	%	4.8	5.2	6.2	0% - 20%
ES2538978-002	Anonymous	EA055: Moisture Content	----	0.1	%	61.9	63.4	2.4	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 7047711)									
ES2537583-052	ID008_SS2	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	0.0052	0.0048	7.2	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 7068728)									
ES2537583-046	WC_OMP04_SD	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	0.0008	0.0008	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	0.0100	0.0087	14.6	0% - 20%
		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: 7047711)									

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: 7047711) - continued									
ES2537583-052	ID008_SS2	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	0.0004	0.0003	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	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	0.0004	0.0003	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	0.0003	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
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 7068728)									
ES2537583-046	WC_OMP04_SD	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: 7047711)									
ES2537583-052	ID008_SS2	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
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 7068728)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 7068728) - continued									
ES2537583-046	WC_OMP04_SD	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 7047711)									
ES2537583-052	ID008_SS2	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 7068728)									
ES2537583-046	WC_OMP04_SD	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 sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 7057925)									
ES2537583-001	WW11_DAM	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	3.87	3.90	0.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	13.5	14.5	6.8	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.39	0.37	3.4	0% - 50%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.47	0.48	0.0	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.27	0.26	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 7057925) - continued									
ES2537583-001	WW11_DAM	EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
ES2537583-004	MC_OMP03	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.37	0.38	3.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.33	0.34	4.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.07	0.0	No Limit
		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	<0.02	<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: 7057928)									
ES2537583-080	MC_OMP01	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01 (0.05)*	µg/L	6.50	6.58	1.1	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01 (0.05)*	µg/L	16.3	14.4	12.5	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.84	0.79	5.8	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.71	0.74	4.2	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.48	0.46	4.1	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 7057925)									
ES2537583-001	WW11_DAM	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.30	0.29	4.1	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.12	0.12	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.49	0.53	7.5	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.11	0.11	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
ES2537583-004	MC_OMP03	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.13	0.13	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.09	0.10	0.0	No Limit
		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

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: 7057928)									
ES2537583-080	MC_OMP01	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.47	0.48	0.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.23	0.24	0.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.92	0.88	4.3	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.18	0.18	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: 7057925)									
ES2537583-001	WW11_DAM	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
ES2537583-004	MC_OMP03	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: 7057928)									

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: 7057928) - continued									
ES2537583-080	MC_OMP01	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: 7057925)									
ES2537583-001	WW11_DAM	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
ES2537583-004	MC_OMP03	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: 7057928)									
ES2537583-080	MC_OMP01	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: 7057925)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231P: PFAS Sums (QC Lot: 7057925) - continued									
ES2537583-001	WW11_DAM	EP231X: Sum of PFAS	----	0.01	µg/L	19.7	20.8	5.2	0% - 20%
ES2537583-004	MC_OMP03	EP231X: Sum of PFAS	----	0.01	µg/L	1.09	1.17	7.1	0% - 20%
EP231P: PFAS Sums (QC Lot: 7057928)									
ES2537583-080	MC_OMP01	EP231X: Sum of PFAS	----	0.01 (0.05)*	µg/L	27.1	25.2	7.2	0% - 20%

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

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7047711)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.1	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7068728)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.4	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.6	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.9	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.2	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7047711)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	110	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	111	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.0	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.4	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.5	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7068728)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	111	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	71.0	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7068728) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	105	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.6	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	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	113	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7047711)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	117	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	123	71.6	129
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	111	69.8	131
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	112	68.7	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	119	65.1	134
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.6	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7068728)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	121	71.6	129
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	69.8	131
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	126	68.7	130
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	112	65.1	134
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	111	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7047711)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	103	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	116	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	122	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	112	69.2	143

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: 7068728)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	91.1	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	107	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	83.4	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	108	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: 7055805)								
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	0.025 µg/L	106	72.0	130
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	0.025 µg/L	102	71.0	127
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.025 µg/L	87.3	68.0	131
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	0.025 µg/L	106	69.0	134
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.025 µg/L	118	65.0	140
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	0.025 µg/L	74.6	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7057925)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	94.8	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	104	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	95.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	91.9	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	106	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7057928)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	92.5	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	103	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	93.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	96.1	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7058571)								
EP231X-LL: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L	<0.002	0.025 µg/L	110	72.0	130
EP231X-LL: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L	<0.002	0.025 µg/L	117	71.0	127
EP231X-LL: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L	<0.002	0.025 µg/L	112	68.0	131
EP231X-LL: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L	<0.002	0.025 µg/L	115	69.0	134
EP231X-LL: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L	<0.002	0.025 µg/L	106	65.0	140

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7058571) - continued								
EP231X-LL: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L	<0.002	0.025 µg/L	94.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7055805)								
EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	0.125 µg/L	104	73.0	129
EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	0.025 µg/L	98.8	72.0	129
EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	0.025 µg/L	94.6	72.0	129
EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	0.025 µg/L	97.8	72.0	130
EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.025 µg/L	97.8	71.0	133
EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	0.025 µg/L	104	69.0	130
EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	0.025 µg/L	94.8	71.0	129
EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	0.025 µg/L	95.5	69.0	133
EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	0.025 µg/L	90.9	72.0	134
EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	0.025 µg/L	81.4	65.0	144
EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	0.0625 µg/L	105	71.0	132
EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L	<0.005	0.025 µg/L	100	65.6	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7057925)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	111	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	95.7	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	108	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	109	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	106	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.7	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	90.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	107	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7057928)								
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	106	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	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	115	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	111	71.0	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: 7057928) - continued								
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	105	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	107	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7058571)								
EP231X-LL: Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L	<0.01	0.125 µg/L	106	73.0	129
EP231X-LL: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L	<0.002	0.025 µg/L	114	72.0	129
EP231X-LL: Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L	<0.002	0.025 µg/L	114	72.0	129
EP231X-LL: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L	<0.002	0.025 µg/L	124	72.0	130
EP231X-LL: Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L	<0.002	0.025 µg/L	114	71.0	133
EP231X-LL: Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L	<0.002	0.025 µg/L	121	69.0	130
EP231X-LL: Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L	<0.002	0.025 µg/L	110	71.0	129
EP231X-LL: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L	<0.002	0.025 µg/L	109	69.0	133
EP231X-LL: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L	<0.002	0.025 µg/L	118	72.0	134
EP231X-LL: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L	<0.002	0.025 µg/L	88.8	65.0	144
EP231X-LL: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L	<0.005	0.0625 µg/L	120	71.0	132
EP231X-LL: Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L	<0.005	0.025 µg/L	117	65.6	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7055805)								
EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	0.025 µg/L	108	67.0	137
EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	0.0625 µg/L	106	68.0	141
EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	0.0625 µg/L	98.0	61.1	139
EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	0.0625 µg/L	111	72.3	128
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	0.0625 µg/L	107	63.2	134
EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	0.025 µg/L	94.2	65.0	136
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	0.025 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7057925)								
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	128	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	113	62.6	147
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	121	66.0	145

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: 7057925) - continued								
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	117	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	99.7	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7057928)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	95.8	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	117	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	98.5	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7058571)								
EP231X-LL: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L	<0.002	0.025 µg/L	107	67.0	137
EP231X-LL: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L	<0.005	0.0625 µg/L	127	68.0	141
EP231X-LL: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L	<0.005	0.0625 µg/L	121	61.1	139
EP231X-LL: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L	<0.005	0.0625 µg/L	123	72.3	128
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L	<0.005	0.0625 µg/L	128	63.2	134
EP231X-LL: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L	<0.002	0.025 µg/L	121	65.0	136
EP231X-LL: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L	<0.002	0.025 µg/L	123	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7055805)								
EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	0.025 µg/L	86.4	63.0	143
EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	0.025 µg/L	86.7	64.0	140
EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	0.025 µg/L	112	67.0	138
EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	0.025 µg/L	95.6	75.2	137
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7057925)								
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

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: 7057925) - continued								
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	90.2	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	102	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	101	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7057928)								
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	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	112	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: 7058571)								
EP231X-LL: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L	<0.005	0.025 µg/L	128	63.0	143
EP231X-LL: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L	<0.005	0.025 µg/L	113	64.0	140
EP231X-LL: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L	<0.005	0.025 µg/L	109	67.0	138
EP231X-LL: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L	<0.005	0.025 µg/L	98.0	75.2	137

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: 7047711)							
ES2537583-052	ID008_SS2	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	93.5	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	121	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	102	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	85.2	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	104	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	107	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7068728)							
ES2537583-046	WC_OMP04_SD	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	93.6	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	101	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	91.6	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	105	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	79.3	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	102	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7047711)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7047711) - continued							
ES2537583-052	ID008_SS2	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	108	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	95.7	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	117	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	106	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	105	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	98.5	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	101	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	95.2	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	94.5	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	89.9	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7068728)							
ES2537583-046	WC_OMP04_SD	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	112	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	114	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	104	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	109	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	106	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	113	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	102	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	94.0	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	108	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	114	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	121	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7047711)							
ES2537583-052	ID008_SS2	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	116	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	122	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	124	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	116	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	118	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	97.2	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	110	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7068728)							
ES2537583-046	WC_OMP04_SD	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	110	67.0	137

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: 7068728) - continued							
ES2537583-046	WC_OMP04_SD	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	112	71.6	129
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	99.9	69.8	131
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	118	68.7	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	106	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	103	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	99.9	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7047711)							
ES2537583-052	ID008_SS2	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	103	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	96.2	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	118	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	97.0	69.2	143
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7068728)							
ES2537583-046	WC_OMP04_SD	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	97.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	91.7	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	81.2	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	98.0	69.2	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
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7057925)							
ES2537583-003	MC_OMP02	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	92.2	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	100	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	89.4	68.0	131
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.25 µg/L	89.3	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	95.5	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.25 µg/L	106	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7057928)							
ES2537583-080	MC_OMP01	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	106	72.0	130
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.25 µg/L	74.8	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	84.9	69.0	134

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 7057928) - continued							
ES2537583-080	MC_OMP01	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	94.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7057925)							
ES2537583-003	MC_OMP02	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	109	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	94.6	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	96.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	98.6	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	98.1	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	104	71.0	129
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	96.0	69.0	133
		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	87.4	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	110	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 7057928)							
ES2537583-080	MC_OMP01	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	105	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	111	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	95.9	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	105	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	120	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	114	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	103	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	108	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.625 µg/L	109	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7057925)							
ES2537583-003	MC_OMP02	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	104	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	116	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	98.6	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	123	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	114	57.6	145
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	107	65.0	136

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7057925) - continued							
ES2537583-003	MC_OMP02	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	98.8	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 7057928)							
ES2537583-080	MC_OMP01	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	109	67.0	137
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	98.8	68.0	141
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	99.9	62.6	147
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	114	66.0	145
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	118	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	97.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7057925)							
ES2537583-003	MC_OMP02	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	96.5	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	88.4	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	99.6	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	90.5	71.4	144
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 7057928)							
ES2537583-080	MC_OMP01	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	113	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	121	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	79.8	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2537583**	Page	: 1 of 10
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025
Site	: ----	Issue Date	: 15-Dec-2025
Sampler	: Michelle Agnew Hollie Dunsten	No. of samples received	: 68
Order number	: ----	No. of samples analysed	: 53

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	ES2537583--080	MC_OMP01	**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	ES2537583--080	MC_OMP01	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content (Dried @ 105-110°C)						
HDPE Soil Jar QC100	----	----	----	09-Dec-2025	03-Dec-2025	**6**
HDPE Soil Jar WC_OMP04_SD	----	----	----	11-Dec-2025	03-Dec-2025	**8**
HDPE Soil Jar ID008_SS2, A_TRUCKFILL_SS1	----	----	----	09-Dec-2025	04-Dec-2025	**5**

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-LL	0	38	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	31	9.68	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	0	38	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.

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) QC100		**19-Nov-2025**	**----**	----	----	**09-Dec-2025**	03-Dec-2025	×
HDPE Soil Jar (EA055) WC_OMP04_SD		**19-Nov-2025**	**----**	----	----	**11-Dec-2025**	03-Dec-2025	×
HDPE Soil Jar (EA055) ID008_SS2,	A_TRUCKFILL_SS1	**20-Nov-2025**	**----**	----	----	**09-Dec-2025**	04-Dec-2025	×
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X) QC100		**19-Nov-2025**	**03-Dec-2025**	18-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
HDPE Soil Jar (EP231X) WC_OMP04_SD		**19-Nov-2025**	**11-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	20-Jan-2026	✓
HDPE Soil Jar (EP231X) ID008_SS2,	A_TRUCKFILL_SS1	**20-Nov-2025**	**03-Dec-2025**	19-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) QC100		**19-Nov-2025**	**03-Dec-2025**	18-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
HDPE Soil Jar (EP231X) WC_OMP04_SD		**19-Nov-2025**	**11-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	20-Jan-2026	✓
HDPE Soil Jar (EP231X) ID008_SS2,	A_TRUCKFILL_SS1	**20-Nov-2025**	**03-Dec-2025**	19-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X) QC100		**19-Nov-2025**	**03-Dec-2025**	18-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
HDPE Soil Jar (EP231X) WC_OMP04_SD		**19-Nov-2025**	**11-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	20-Jan-2026	✓
HDPE Soil Jar (EP231X) ID008_SS2,	A_TRUCKFILL_SS1	**20-Nov-2025**	**03-Dec-2025**	19-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) QC100		**19-Nov-2025**	**03-Dec-2025**	18-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
HDPE Soil Jar (EP231X) WC_OMP04_SD		**19-Nov-2025**	**11-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	20-Jan-2026	✓
HDPE Soil Jar (EP231X) ID008_SS2,	A_TRUCKFILL_SS1	**20-Nov-2025**	**03-Dec-2025**	19-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X) QC100		**19-Nov-2025**	**03-Dec-2025**	18-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓
HDPE Soil Jar (EP231X) WC_OMP04_SD		**19-Nov-2025**	**11-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	20-Jan-2026	✓
HDPE Soil Jar (EP231X) ID008_SS2,	A_TRUCKFILL_SS1	**20-Nov-2025**	**03-Dec-2025**	19-May-2026	✓	**08-Dec-2025**	12-Jan-2026	✓

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-LL)							
DEPOT_TAP1, A_TAP1	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**10-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
MC_OMP09, MC_OMP11, WC_OMP01, WC_OMP02, DEPOT_TANK1, DEPOT_TANK2, AIRPORT_BORE, ID013_BORE, ID014_BORE, ID016_BORE, A_TAP15	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**12-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
PWS_HOSP_TAP1, PWS_HOSP_TAP3, PWS_HOSP_TAP4, PWS_HOSP_TAP8, PWS_HOSP_TAP6	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**10-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
WC_OMP03, WC_OMP04_DUCKDAM, WC_OMP05, COCKPIT_SW01, WC01, WC02	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**12-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
FRE_TAP1	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**10-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X)							
MC_OMP10, FRE_TAP2, PWS_HEAD_DAM, A_TAP4, A_TAP5, FRE_TAP6, ELEC_TAP1, MC_OMP01	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X)							
WW11_DAM, MC_OMP02, MC_OMP03, MC_OMP04a, MC_OMP05a, MC_OMP06, MC_OMP07a, ID019_BORE, WASTE_TAP1, COUNCIL_TAP1, QC101, QC102, QC103, QC104, QC105	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**12-Dec-2025**	19-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
QC500	**21-Nov-2025**	**05-Dec-2025**	20-May-2026	✓	**12-Dec-2025**	20-May-2026	✓

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-LL)							
DEPOT_TAP1, A_TAP1	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**10-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
MC_OMP09, MC_OMP11, WC_OMP01, WC_OMP02, DEPOT_TANK1, DEPOT_TANK2, AIRPORT_BORE, ID013_BORE, ID014_BORE, ID016_BORE, A_TAP15	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**12-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
PWS_HOSP_TAP1, PWS_HOSP_TAP3, PWS_HOSP_TAP4, PWS_HOSP_TAP8, PWS_HOSP_TAP6	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**10-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
WC_OMP03, WC_OMP04_DUCKDAM, WC_OMP05, COCKPIT_SW01, WC01, WC02	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**12-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
FRE_TAP1	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**10-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X)							
MC_OMP10, FRE_TAP2, PWS_HEAD_DAM, A_TAP4, A_TAP5, FRE_TAP6, ELEC_TAP1, MC_OMP01	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X)							
WW11_DAM, MC_OMP02, MC_OMP03, MC_OMP04a, MC_OMP05a, MC_OMP06, MC_OMP07a, ID019_BORE, WASTE_TAP1, COUNCIL_TAP1, QC101, QC102, QC103, QC104, QC105	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**12-Dec-2025**	19-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
QC500	**21-Nov-2025**	**05-Dec-2025**	20-May-2026	✓	**12-Dec-2025**	20-May-2026	✓

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-LL)							
DEPOT_TAP1, A_TAP1	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**10-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
MC_OMP09, MC_OMP11, WC_OMP01, WC_OMP02, DEPOT_TANK1, DEPOT_TANK2, AIRPORT_BORE, ID013_BORE, ID014_BORE, ID016_BORE, A_TAP15	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**12-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
PWS_HOSP_TAP1, PWS_HOSP_TAP3, PWS_HOSP_TAP4, PWS_HOSP_TAP8, PWS_HOSP_TAP6	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**10-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
WC_OMP03, WC_OMP04_DUCKDAM, WC_OMP05, COCKPIT_SW01, WC01, WC02	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**12-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
FRE_TAP1	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**10-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X)							
MC_OMP10, FRE_TAP2, PWS_HEAD_DAM, A_TAP4, A_TAP5, FRE_TAP6, ELEC_TAP1, MC_OMP01	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X)							
WW11_DAM, MC_OMP02, MC_OMP03, MC_OMP04a, MC_OMP05a, MC_OMP06, MC_OMP07a, ID019_BORE, WASTE_TAP1, COUNCIL_TAP1, QC101, QC102, QC103, QC104, QC105	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**12-Dec-2025**	19-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
QC500	**21-Nov-2025**	**05-Dec-2025**	20-May-2026	✓	**12-Dec-2025**	20-May-2026	✓

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-LL)							
DEPOT_TAP1, A_TAP1	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**10-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
MC_OMP09, MC_OMP11, WC_OMP01, WC_OMP02, DEPOT_TANK1, DEPOT_TANK2, AIRPORT_BORE, ID013_BORE, ID014_BORE, ID016_BORE, A_TAP15	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**12-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
PWS_HOSP_TAP1, PWS_HOSP_TAP3, PWS_HOSP_TAP4, PWS_HOSP_TAP8, PWS_HOSP_TAP6	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**10-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
WC_OMP03, WC_OMP04_DUCKDAM, WC_OMP05, COCKPIT_SW01, WC01, WC02	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**12-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
FRE_TAP1	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**10-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X)							
MC_OMP10, FRE_TAP2, PWS_HEAD_DAM, A_TAP4, A_TAP5, FRE_TAP6, ELEC_TAP1, MC_OMP01	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X)							
WW11_DAM, MC_OMP02, MC_OMP03, MC_OMP04a, MC_OMP05a, MC_OMP06, MC_OMP07a, ID019_BORE, WASTE_TAP1, COUNCIL_TAP1, QC101, QC102, QC103, QC104, QC105	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**12-Dec-2025**	19-May-2026	✓
HDPE (no PTFE) (EP231X-LL)							
QC500	**21-Nov-2025**	**05-Dec-2025**	20-May-2026	✓	**12-Dec-2025**	20-May-2026	✓

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-LL) DEPOT_TAP1, A_TAP1	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**10-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL) MC_OMP09, MC_OMP11, WC_OMP01, WC_OMP02, DEPOT_TANK1, DEPOT_TANK2, AIRPORT_BORE, ID013_BORE, ID014_BORE, ID016_BORE, A_TAP15	**17-Nov-2025**	**05-Dec-2025**	16-May-2026	✓	**12-Dec-2025**	16-May-2026	✓
HDPE (no PTFE) (EP231X-LL) PWS_HOSP_TAP1, PWS_HOSP_TAP3, PWS_HOSP_TAP4, PWS_HOSP_TAP8, PWS_HOSP_TAP6	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**10-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL) WC_OMP03, WC_OMP04_DUCKDAM, WC_OMP05, COCKPIT_SW01, WC01, WC02	**18-Nov-2025**	**05-Dec-2025**	17-May-2026	✓	**12-Dec-2025**	17-May-2026	✓
HDPE (no PTFE) (EP231X-LL) FRE_TAP1	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**10-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X) MC_OMP10, FRE_TAP2, PWS_HEAD_DAM, A_TAP4, A_TAP5, FRE_TAP6, ELEC_TAP1, MC_OMP01	**19-Nov-2025**	**05-Dec-2025**	18-May-2026	✓	**12-Dec-2025**	18-May-2026	✓
HDPE (no PTFE) (EP231X) WW11_DAM, MC_OMP02, MC_OMP03, MC_OMP04a, MC_OMP05a, MC_OMP06, MC_OMP07a, ID019_BORE, WASTE_TAP1, COUNCIL_TAP1, QC101, QC102, QC103, QC104, QC105	**20-Nov-2025**	**05-Dec-2025**	19-May-2026	✓	**12-Dec-2025**	19-May-2026	✓
HDPE (no PTFE) (EP231X-LL) QC500	**21-Nov-2025**	**05-Dec-2025**	20-May-2026	✓	**12-Dec-2025**	20-May-2026	✓

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	4	33	**12.12**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	4	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	4	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	4	**50.00**	**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-LL	0	38	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	31	**9.68**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	0	38	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	31	**6.45**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
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 negative mode LC-ESI-MS/MS using MRM and isotope dilution or internal standard quantitation. A portion of homogenised sample is extracted along with isotope dilution standards (where commercially available) in a solution of ammonium acetate in acetonitrile/methanol. Where relevant, interferences from co-extracted organics are removed using dispersive clean-up media (dSPE). A portion of extract is combined with an equal volume of reagent water and filtered for instrumental analysis.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction (SPE) followed by negative mode LC-ESI-MS/MS using MRM and isotope dilution or internal standard quantitation. Isotope dilution standards (where commercially available) and surrogates are added to the sample container. The entire contents are transferred to a weak anion exchange (WAX) 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. Data quality objectives for internal standard recoveries are based on US EPA method 1633.
Per- and Polyfluoroalkyl Substances (PFAS by LCMSMS	EP231X-LL	WATER	In-house: Analysis of fresh and saline waters by solid phase extraction (SPE) followed by negative mode LC-ESI-MS/MS using MRM and isotope dilution or internal standard quantitation. Isotope dilution standards (where commercially available) and surrogates are added to the sample container. The entire contents are transferred to a weak anion exchange (WAX) 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. Data quality objectives for internal standard recoveries are based on US EPA method 1633.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2537583**

Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: michelle.agnew@senversa.com.au	E-mail	: andrew.wotherspoon@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: C17776 Norfolk DSI	Page	: 1 of 4
Order number	: ----	Quote number	: EB2023SENVER0001 (EN/000)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Michelle Agnew Hollie Dunsten		

Dates

Date Samples Received	: 24-Nov-2025 08:45	Issue Date	: 10-Dec-2025
Client Requested Due Date	: 12-Dec-2025	Scheduled Reporting Date	: **12-Dec-2025**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Intact.
No. of coolers/boxes	: 2	Temperature	: 21.6°C, 22.3°C & 21.4°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 68 / 53

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 80 received as extra.
- Sample ID ID008_551 was not received.
- **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.**
- 10/12/2025: This is an updated SRN which indicates the addition of PFAS analysis to sample 46 as requested by Michelle.
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.
- 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)
ES2537583-046	19-Nov-2025 00:00	WC_OMP04_SD		✓	✓
ES2537583-051	20-Nov-2025 00:00	ID008_SS1	✓		
ES2537583-052	20-Nov-2025 00:00	ID008_SS2		✓	✓
ES2537583-054	20-Nov-2025 00:00	A_TRUCKFILL_SS2	✓		
ES2537583-055	20-Nov-2025 00:00	A_TRUCKFILL_SS1		✓	✓
ES2537583-056	21-Nov-2025 00:00	BALL_SS3	✓		
ES2537583-057	21-Nov-2025 00:00	BALL_SS4	✓		
ES2537583-058	21-Nov-2025 00:00	BALL_SS5	✓		
ES2537583-060	19-Nov-2025 00:00	QC100		✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (31 analytes)	WATER - EP231X-LL PFAS - Full Suite (31 analytes) Low Level
ES2537583-001	20-Nov-2025 00:00	WW11_DAM		✓	
ES2537583-002	17-Nov-2025 00:00	MC_OMP01	✓		
ES2537583-003	20-Nov-2025 00:00	MC_OMP02		✓	
ES2537583-004	20-Nov-2025 00:00	MC_OMP03		✓	
ES2537583-005	20-Nov-2025 00:00	MC_OMP04a		✓	
ES2537583-006	20-Nov-2025 00:00	MC_OMP05a		✓	
ES2537583-007	20-Nov-2025 00:00	MC_OMP06		✓	
ES2537583-008	20-Nov-2025 00:00	MC_OMP07a		✓	
ES2537583-009	17-Nov-2025 00:00	MC_OMP09		✓	
ES2537583-010	19-Nov-2025 00:00	MC_OMP10		✓	
ES2537583-011	17-Nov-2025 00:00	MC_OMP11		✓	
ES2537583-012	17-Nov-2025 00:00	WC_OMP01		✓	
ES2537583-013	17-Nov-2025 00:00	WC_OMP02		✓	
ES2537583-014	18-Nov-2025 00:00	WC_OMP03		✓	

			(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (31 analytes)	WATER - EP231X-LL PFAS - Full Suite (31 analytes) Low Level
ES2537583-015	18-Nov-2025 00:00	WC_OMP04_DUCKDAM		✓	
ES2537583-016	18-Nov-2025 00:00	WC_OMP05		✓	
ES2537583-017	18-Nov-2025 00:00	COCKPIT_SW01		✓	
ES2537583-018	19-Nov-2025 00:00	FRE_TAP1			✓
ES2537583-019	19-Nov-2025 00:00	FRE_TAP2		✓	
ES2537583-020	17-Nov-2025 00:00	DEPOT_TAP1			✓
ES2537583-021	17-Nov-2025 00:00	DEPOT_TANK1		✓	
ES2537583-022	17-Nov-2025 00:00	DEPOT_TANK2		✓	
ES2537583-023	17-Nov-2025 00:00	DEPOT_TANK3	✓		
ES2537583-024	17-Nov-2025 00:00	A_TAP1			✓
ES2537583-025	17-Nov-2025 00:00	AIRPORT_BORE		✓	
ES2537583-026	19-Nov-2025 00:00	PWS_HEAD_DAM		✓	
ES2537583-027	19-Nov-2025 00:00	PWS_HEAD_TOILET	✓		
ES2537583-028	19-Nov-2025 00:00	PWS_BUMBORA_TOILET	✓		
ES2537583-029	17-Nov-2025 00:00	ID013_BORE		✓	
ES2537583-030	17-Nov-2025 00:00	ID014_BORE		✓	
ES2537583-031	20-Nov-2025 00:00	ID019_BORE		✓	
ES2537583-032	17-Nov-2025 00:00	ID016_BORE		✓	
ES2537583-033	18-Nov-2025 00:00	PWS_HOSP_TAP1			✓
ES2537583-034	18-Nov-2025 00:00	PWS_HOSP_TAP3			✓
ES2537583-035	18-Nov-2025 00:00	PWS_HOSP_TAP4			✓
ES2537583-036	18-Nov-2025 00:00	PWS_HOSP_TAP8			✓
ES2537583-037	18-Nov-2025 00:00	PWS_HOSP_TAP6			✓
ES2537583-038	18-Nov-2025 00:00	PWS_HOSP_TANK1	✓		
ES2537583-039	17-Nov-2025 00:00	A_TAP12	✓		
ES2537583-040	17-Nov-2025 00:00	A_TAP16A	✓		
ES2537583-041	17-Nov-2025 00:00	A_TAP15			✓
ES2537583-042	19-Nov-2025 00:00	A_TAP4			✓
ES2537583-043	19-Nov-2025 00:00	A_TAP5			✓
ES2537583-044	18-Nov-2025 00:00	WC01			✓
ES2537583-045	18-Nov-2025 00:00	WC02			✓
ES2537583-047	19-Nov-2025 00:00	FRE_TAP6			✓
ES2537583-048	19-Nov-2025 00:00	ELEC_TAP1			✓
ES2537583-049	20-Nov-2025 00:00	WASTE_TAP1			✓
ES2537583-050	20-Nov-2025 00:00	COUNCIL_TAP1			✓
ES2537583-061	20-Nov-2025 00:00	QC101		✓	
ES2537583-062	20-Nov-2025 00:00	QC102		✓	
ES2537583-063	20-Nov-2025 00:00	QC103		✓	
ES2537583-064	20-Nov-2025 00:00	QC104		✓	
ES2537583-065	20-Nov-2025 00:00	QC105		✓	
ES2537583-066	21-Nov-2025 00:00	QC500			✓

			(On Hold) WATER No analysis requested	WATER - EP231X PFAS - Full Suite (31 analytes)	WATER - EP231X-LL PFAS - Full Suite (31 analytes) Low Level
ES2537583-067	20-Nov-2025 00:00	QC400	✓		
ES2537583-068	21-Nov-2025 00:00	BALL_SW1	✓		
ES2537583-080	19-Nov-2025 00:00	MC_OMP01		✓	

Proactive Holding Time Report

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

Requested Deliverables

MICHELLE AGNEW

- *AU Certificate of Analysis - NATA (COA)	Email	michelle.agnew@senversa.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	michelle.agnew@senversa.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	michelle.agnew@senversa.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	michelle.agnew@senversa.com.au
- Chain of Custody (CoC) (COC)	Email	michelle.agnew@senversa.com.au
- EDI Format - ESDAT (ESDAT)	Email	michelle.agnew@senversa.com.au

SUPPLIER ACCOUNTS

- A4 - AU Tax Invoice (INV)	Email	supplieraccounts@senversa.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2537583-AA**	Page	: 1 of 33
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 08:45
Order number	: ----	Date Analysis Commenced	: 03-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 12:12
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 50		
No. of samples analysed	: 49		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Inorganics, Smithfield, NSW
Alex Rossi	Organic Chemist	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 - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- Amendment (16/12/2025): This report has been amended following the request to add additional analysis EP231X Full Suite PFAS to samples 056, 057, and 058.
- Amendment (12/01/2026): This report has been amended following the request to organise spilt reports as requested by Michelle Agnew.
- Amendment (12/02/2026): This report has been amended following the request to update sample ID #44 to WC-03_BORE and #45 to WC-04 as requested by Michelle Agnew.
- 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: SEDIMENT (Matrix: SOIL)			Sample ID	WC_OMP04_SD	QC100	----	----	----
			Sampling date / time	19-Nov-2025 00:00	19-Nov-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2537583-046	ES2537583-060	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**51.6**	**51.8**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	**0.0008**	**0.0009**	----	----	----
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	**0.0100**	**0.0083**	----	----	----
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: SEDIMENT (Matrix: SOIL)			Sample ID	WC_OMP04_SD	QC100	----	----	----
			Sampling date / time	19-Nov-2025 00:00	19-Nov-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2537583-046	ES2537583-060	--------	--------	--------
				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	**0.0108**	**0.0092**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0108**	**0.0092**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0108**	**0.0092**	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**91.6**	**89.1**	----	----	----
13C8-PFOA	----	0.0002	%	**92.8**	**85.2**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A_TRUCKFILL_SS1	BALL_SS3	BALL_SS4	BALL_SS5	----
			Sampling date / time	20-Nov-2025 00:00	21-Nov-2025 00:00	21-Nov-2025 00:00	21-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2537583-055	ES2537583-056	ES2537583-057	ES2537583-058	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**30.8**	**27.3**	**13.9**	**12.2**	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	**0.0009**	**0.0033**	**0.0028**	**0.0005**	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	**0.0004**	<0.0002	<0.0002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0841**	**0.0437**	**0.0197**	**0.0084**	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	**0.0002**	**0.0159**	**0.0105**	**0.0006**	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	**0.043**	**0.011**	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	**0.0002**	**0.0002**	**0.167**	**0.0541**	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	**0.0005**	**0.0004**	**0.0918**	**0.0569**	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	**0.0004**	**0.0462**	**0.0503**	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	**0.0012**	**0.0005**	**0.0601**	**0.0680**	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	**0.0008**	**0.0361**	**0.0260**	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	**0.0182**	**0.0706**	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	**0.0003**	**0.0049**	**0.0934**	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	**0.0004**	**0.0025**	**0.0713**	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	**0.0005**	**0.0317**	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	**0.0010**	**0.0348**	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	**0.0015**	<0.0002	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	A_TRUCKFILL_SS1	BALL_SS3	BALL_SS4	BALL_SS5	----
			Sampling date / time	20-Nov-2025 00:00	21-Nov-2025 00:00	21-Nov-2025 00:00	21-Nov-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2537583-055	ES2537583-056	ES2537583-057	ES2537583-058	--------
				Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	**0.0032**	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	**0.829**	**1.77**	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	**2.28**	**4.07**	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	**0.129**	**0.549**	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0877**	**0.0762**	**3.75**	**6.97**	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0850**	**0.0470**	**0.0225**	**0.0089**	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0869**	**0.0485**	**3.54**	**6.09**	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**85.2**	**98.6**	**93.8**	**105**	----
13C8-PFOA	----	0.0002	%	**88.8**	**84.4**	**89.4**	**96.8**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WW11_DAM	MC_OMP02	MC_OMP03	MC_OMP04a	MC_OMP05a
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-001	ES2537583-003	ES2537583-004	ES2537583-005	ES2537583-006
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.39**	**0.04**	**0.06**	**0.38**	**0.39**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.47**	**0.04**	**0.06**	**0.42**	**0.43**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**3.87**	**0.24**	**0.37**	**3.18**	**3.19**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.27**	<0.02	<0.02	**0.19**	**0.17**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**13.5**	**0.05**	**0.33**	**10.7**	**5.77**
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		**0.12**	**0.13**	**0.13**	**0.17**	**0.17**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.49**	**0.07**	**0.09**	**0.53**	**0.56**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.11**	**0.03**	**0.03**	**0.10**	**0.10**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.30**	**0.02**	**0.02**	**0.22**	**0.23**
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	WW11_DAM	MC_OMP02	MC_OMP03	MC_OMP04a	MC_OMP05a
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-001	ES2537583-003	ES2537583-004	ES2537583-005	ES2537583-006
					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		**19.7**	**0.62**	**1.09**	**16.2**	**11.3**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**17.4**	**0.29**	**0.70**	**13.9**	**8.96**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**18.8**	**0.58**	**1.03**	**15.4**	**10.5**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**100**	**90.5**	**109**	**102**	**95.9**
13C8-PFOA	----	0.02	%		**107**	**98.1**	**100.0**	**93.8**	**99.1**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MC_OMP06	MC_OMP07a	MC_OMP09	MC_OMP10	MC_OMP11
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	17-Nov-2025 00:00	19-Nov-2025 00:00	17-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-007	ES2537583-008	ES2537583-009	ES2537583-010	ES2537583-011
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.39**	**0.39**	**0.31**	**0.24**	**0.26**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.41**	**0.43**	**0.33**	**0.26**	**0.30**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**3.37**	**2.96**	**2.43**	**2.04**	**2.31**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.18**	**0.17**	**0.14**	**0.12**	**0.12**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**5.09**	**5.38**	**3.99**	**3.49**	**3.79**
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**	**0.18**	**0.10**	**0.10**	**0.10**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.55**	**0.52**	**0.35**	**0.31**	**0.31**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.10**	**0.08**	**0.06**	**0.06**	**0.06**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.22**	**0.22**	**0.14**	**0.14**	**0.13**
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	MC_OMP06	MC_OMP07a	MC_OMP09	MC_OMP10	MC_OMP11
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	17-Nov-2025 00:00	19-Nov-2025 00:00	17-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-007	ES2537583-008	ES2537583-009	ES2537583-010	ES2537583-011
					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		**10.7**	**10.6**	**7.98**	**6.86**	**7.49**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**8.46**	**8.34**	**6.42**	**5.53**	**6.10**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**9.98**	**9.83**	**7.38**	**6.38**	**6.96**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.6**	**98.5**	**107**	**101**	**102**
13C8-PFOA	----	0.02	%		**97.6**	**98.2**	**98.8**	**99.5**	**99.5**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WC_OMP01	WC_OMP02	WC_OMP03	WC_OMP04_DUCKDAM	WC_OMP05
				Sampling date / time	17-Nov-2025 00:00	17-Nov-2025 00:00	18-Nov-2025 00:00	18-Nov-2025 00:00	18-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-012	ES2537583-013	ES2537583-014	ES2537583-015	ES2537583-016
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.11**	**0.06**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.10**	**0.07**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.73**	**0.43**	**0.12**	**0.10**	**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		**0.28**	**0.12**	**0.05**	**0.04**	**0.01**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.04**	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.12**	**0.06**	<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	WC_OMP01	WC_OMP02	WC_OMP03	WC_OMP04_DUCKDAM	WC_OMP05
				Sampling date / time	17-Nov-2025 00:00	17-Nov-2025 00:00	18-Nov-2025 00:00	18-Nov-2025 00:00	18-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-012	ES2537583-013	ES2537583-014	ES2537583-015	ES2537583-016
					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		**1.44**	**0.76**	**0.17**	**0.14**	**0.04**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.01**	**0.55**	**0.17**	**0.14**	**0.04**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.30**	**0.67**	**0.17**	**0.14**	**0.04**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.4**	**103**	**103**	**104**	**100**
13C8-PFOA	----	0.02	%		**99.0**	**100.0**	**103**	**102**	**103**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	COCKPIT_SW01	FRE_TAP1	FRE_TAP2	DEPOT_TAP1	DEPOT_TANK1
				Sampling date / time	18-Nov-2025 00:00	19-Nov-2025 00:00	19-Nov-2025 00:00	17-Nov-2025 00:00	17-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-017	ES2537583-018	ES2537583-019	ES2537583-020	ES2537583-021
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.01**	----	**0.02**	----	<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	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.01**	----	**0.03**	----	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		----	<0.002	----	<0.002	----
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	0.01	µg/L		----	<0.01	----	<0.01	----
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	<0.1	----	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	<0.02	----	<0.02

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	COCKPIT_SW01	FRE_TAP1	FRE_TAP2	DEPOT_TAP1	DEPOT_TANK1
				Sampling date / time	18-Nov-2025 00:00	19-Nov-2025 00:00	19-Nov-2025 00:00	17-Nov-2025 00:00	17-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-017	ES2537583-018	ES2537583-019	ES2537583-020	ES2537583-021
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	<0.01	----	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	<0.02	----	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		----	<0.005	----	<0.005	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	<0.05	----	<0.05
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		----	<0.005	----	<0.005	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		----	<0.002	----	<0.002	----
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	<0.02	----	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		----	<0.005	----	<0.005	----
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	COCKPIT_SW01	FRE_TAP1	FRE_TAP2	DEPOT_TAP1	DEPOT_TANK1
				Sampling date / time	18-Nov-2025 00:00	19-Nov-2025 00:00	19-Nov-2025 00:00	17-Nov-2025 00:00	17-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-017	ES2537583-018	ES2537583-019	ES2537583-020	ES2537583-021
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		----	<0.005	----	<0.005	----
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	0.005	µg/L		----	<0.005	----	<0.005	----
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	0.005	µg/L		----	<0.005	----	<0.005	----
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	0.002	µg/L		----	<0.002	----	<0.002	----
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	0.002	µg/L		----	<0.002	----	<0.002	----
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	0.005	µg/L		----	<0.005	----	<0.005	----
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	0.005	µg/L		----	<0.005	----	<0.005	----
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	0.005	µg/L		----	<0.005	----	<0.005	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	COCKPIT_SW01	FRE_TAP1	FRE_TAP2	DEPOT_TAP1	DEPOT_TANK1
				Sampling date / time	18-Nov-2025 00:00	19-Nov-2025 00:00	19-Nov-2025 00:00	17-Nov-2025 00:00	17-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-017	ES2537583-018	ES2537583-019	ES2537583-020	ES2537583-021
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
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	0.005	µg/L		----	<0.005	----	<0.005	----
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	----	0.002	µg/L		----	<0.002	----	<0.002	----
Sum of PFAS	----	0.01	µg/L		**0.02**	----	**0.05**	----	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		----	<0.002	----	<0.002	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	----	**0.05**	----	<0.01
Sum of PFAS (WA DER List)	----	0.002	µg/L		----	<0.002	----	<0.002	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	----	**0.05**	----	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		----	**94.1**	----	**89.5**	----
13C4-PFOS	----	0.02	%		**113**	----	**102**	----	**105**
13C8-PFOA	----	0.002	%		----	**92.5**	----	**90.5**	----
13C8-PFOA	----	0.02	%		**100**	----	**98.3**	----	**101**

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	DEPOT_TANK2	A_TAP1	AIRPORT_BORE	PWS_HEAD_DAM	PWS_HOSP_TAP1
				Sampling date / time	17-Nov-2025 00:00	17-Nov-2025 00:00	17-Nov-2025 00:00	19-Nov-2025 00:00	18-Nov-2025 00:00
					ES2537583-022	ES2537583-024	ES2537583-025	ES2537583-026	ES2537583-033
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	**0.61**	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	**0.54**	<0.02	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	**6.05**	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	**0.34**	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	**12.5**	<0.01	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		----	<0.002	----	----	<0.002
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	0.01	µg/L		----	<0.01	----	----	<0.01
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	**0.1**	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	**0.16**	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	**0.66**	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	**0.14**	<0.02	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	DEPOT_TANK2	A_TAP1	AIRPORT_BORE	PWS_HEAD_DAM	PWS_HOSP_TAP1
				Sampling date / time	17-Nov-2025 00:00	17-Nov-2025 00:00	17-Nov-2025 00:00	19-Nov-2025 00:00	18-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-022	ES2537583-024	ES2537583-025	ES2537583-026	ES2537583-033
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	**0.35**	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		----	<0.005	----	----	<0.005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	<0.05	<0.05	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		----	<0.005	----	----	<0.005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		----	<0.002	----	----	<0.002
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		----	<0.005	----	----	<0.005
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	DEPOT_TANK2	A_TAP1	AIRPORT_BORE	PWS_HEAD_DAM	PWS_HOSP_TAP1
				Sampling date / time	17-Nov-2025 00:00	17-Nov-2025 00:00	17-Nov-2025 00:00	19-Nov-2025 00:00	18-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-022	ES2537583-024	ES2537583-025	ES2537583-026	ES2537583-033
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		----	<0.005	----	----	<0.005
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	0.005	µg/L		----	<0.005	----	----	<0.005
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	0.005	µg/L		----	<0.005	----	----	<0.005
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	0.002	µg/L		----	<0.002	----	----	<0.002
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	0.002	µg/L		----	<0.002	----	----	<0.002
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	0.005	µg/L		----	<0.005	----	----	<0.005
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	0.005	µg/L		----	<0.005	----	----	<0.005
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	0.005	µg/L		----	<0.005	----	----	<0.005

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	DEPOT_TANK2	A_TAP1	AIRPORT_BORE	PWS_HEAD_DAM	PWS_HOSP_TAP1
				Sampling date / time	17-Nov-2025 00:00	17-Nov-2025 00:00	17-Nov-2025 00:00	19-Nov-2025 00:00	18-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-022	ES2537583-024	ES2537583-025	ES2537583-026	ES2537583-033
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
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	0.005	µg/L		----	<0.005	----	----	<0.005
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	----	0.002	µg/L		----	<0.002	----	----	<0.002
Sum of PFAS	----	0.01	µg/L		<0.01	----	**21.7**	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		----	<0.002	----	----	<0.002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	**18.6**	<0.01	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		----	<0.002	----	----	<0.002
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	**20.6**	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		----	**92.2**	----	----	**89.0**
13C4-PFOS	----	0.02	%		**92.5**	----	**102**	**100**	----
13C8-PFOA	----	0.002	%		----	**89.3**	----	----	**88.9**
13C8-PFOA	----	0.02	%		**100**	----	**94.4**	**91.4**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	PWS_HOSP_TAP3	PWS_HOSP_TAP4	PWS_HOSP_TAP8	PWS_HOSP_TAP6	A_TAP15
				Sampling date / time	18-Nov-2025 00:00	18-Nov-2025 00:00	18-Nov-2025 00:00	18-Nov-2025 00:00	17-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-034	ES2537583-035	ES2537583-036	ES2537583-037	ES2537583-041
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	PWS_HOSP_TAP3	PWS_HOSP_TAP4	PWS_HOSP_TAP8	PWS_HOSP_TAP6	A_TAP15
				Sampling date / time	18-Nov-2025 00:00	18-Nov-2025 00:00	18-Nov-2025 00:00	18-Nov-2025 00:00	17-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-034	ES2537583-035	ES2537583-036	ES2537583-037	ES2537583-041
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFAS (WA DER List)	----	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		**95.5**	**98.3**	**92.6**	**94.4**	**103**
13C8-PFOA	----	0.002	%		**91.6**	**92.7**	**90.5**	**93.7**	**95.5**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A_TAP4	A_TAP5	FRE_TAP6	ELEC_TAP1	WASTE_TAP1
				Sampling date / time	19-Nov-2025 00:00	19-Nov-2025 00:00	19-Nov-2025 00:00	19-Nov-2025 00:00	20-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-042	ES2537583-043	ES2537583-047	ES2537583-048	ES2537583-049
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		**0.007**	<0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		**0.008**	<0.002	<0.002	<0.002	<0.002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		**0.060**	<0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		**0.005**	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		**0.148**	<0.002	<0.002	<0.002	<0.002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		**0.004**	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		**0.014**	<0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		**0.002**	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		**0.005**	<0.002	<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	A_TAP4	A_TAP5	FRE_TAP6	ELEC_TAP1	WASTE_TAP1
				Sampling date / time	19-Nov-2025 00:00	19-Nov-2025 00:00	19-Nov-2025 00:00	19-Nov-2025 00:00	20-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-042	ES2537583-043	ES2537583-047	ES2537583-048	ES2537583-049
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		<0.002	<0.002	<0.002	<0.002	<0.002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	<0.005	<0.005	<0.005	<0.005
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		**0.253**	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		**0.208**	<0.002	<0.002	<0.002	<0.002
Sum of PFAS (WA DER List)	----	0.002	µg/L		**0.240**	<0.002	<0.002	<0.002	<0.002
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		**97.9**	**104**	**104**	**101**	**100**
13C8-PFOA	----	0.002	%		**96.1**	**94.3**	**93.9**	**92.8**	**93.6**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	COUNCIL_TAP1	QC101	QC102	QC103	QC104
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-050	ES2537583-061	ES2537583-062	ES2537583-063	ES2537583-064
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		<0.002	----	----	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	**0.45**	**0.89**	**0.49**	**0.09**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		<0.002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		----	**0.40**	**0.74**	**0.42**	**0.07**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	**4.20**	**7.04**	**4.04**	**0.55**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		----	**0.28**	**0.49**	**0.22**	**0.02**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	**12.8**	**12.4**	**4.51**	**0.47**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		<0.002	----	----	----	----
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	0.01	µg/L		<0.01	----	----	----	----
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	**0.1**	**0.1**	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		<0.002	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	**0.14**	**0.23**	**0.17**	**0.14**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	**0.53**	**0.92**	**0.59**	**0.11**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		<0.002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	**0.10**	**0.17**	**0.10**	**0.03**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	COUNCIL_TAP1	QC101	QC102	QC103	QC104
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-050	ES2537583-061	ES2537583-062	ES2537583-063	ES2537583-064
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	**0.29**	**0.48**	**0.21**	**0.03**
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		----	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		<0.002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		----	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		<0.002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		----	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		----	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		----	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		<0.005	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		----	<0.05	<0.05	<0.05	<0.05
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		<0.005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		<0.002	----	----	----	----
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	0.005	µg/L		<0.005	----	----	----	----
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	COUNCIL_TAP1	QC101	QC102	QC103	QC104
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-050	ES2537583-061	ES2537583-062	ES2537583-063	ES2537583-064
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		<0.005	----	----	----	----
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	0.005	µg/L		<0.005	----	----	----	----
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	0.005	µg/L		<0.005	----	----	----	----
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	0.002	µg/L		<0.002	----	----	----	----
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	0.002	µg/L		<0.002	----	----	----	----
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	0.005	µg/L		<0.005	----	----	----	----
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	0.005	µg/L		<0.005	----	----	----	----
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	0.005	µg/L		<0.005	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	COUNCIL_TAP1	QC101	QC102	QC103	QC104
				Sampling date / time	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00	20-Nov-2025 00:00
Compound	CAS Number	LOR	Unit		ES2537583-050	ES2537583-061	ES2537583-062	ES2537583-063	ES2537583-064
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
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	0.005	µg/L		<0.005	----	----	----	----
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	----	0.002	µg/L		<0.002	----	----	----	----
Sum of PFAS	----	0.01	µg/L		----	**19.5**	**23.8**	**10.9**	**1.54**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	**17.0**	**19.4**	**8.55**	**1.02**
Sum of PFAS (WA DER List)	----	0.002	µg/L		<0.002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	**18.6**	**22.2**	**10.1**	**1.42**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		**102**	----	----	----	----
13C4-PFOS	----	0.02	%		----	**97.6**	**94.8**	**96.8**	**97.4**
13C8-PFOA	----	0.002	%		**101**	----	----	----	----
13C8-PFOA	----	0.02	%		----	**93.2**	**92.1**	**91.1**	**87.3**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC105	QC500	MC_OMP01	----	----
				Sampling date / time	20-Nov-2025 00:00	21-Nov-2025 00:00	19-Nov-2025 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2537583-065	ES2537583-066	ES2537583-080	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		----	<0.002	----	----	----
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.05**	----	**0.84**	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		----	<0.002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		----	<0.002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.03**	----	**0.71**	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		----	<0.002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.28**	----	**6.50**	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	**0.48**	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		----	<0.002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.05**	----	**16.3**	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		----	<0.002	----	----	----
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	0.01	µg/L		----	<0.01	----	----	----
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	**0.1**	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		----	<0.002	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.15**	----	**0.23**	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		----	<0.002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.09**	----	**0.92**	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		----	<0.002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.03**	----	**0.18**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC105	QC500	MC_OMP01	----	----
				Sampling date / time	20-Nov-2025 00:00	21-Nov-2025 00:00	19-Nov-2025 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2537583-065	ES2537583-066	ES2537583-080	--------	--------
					Result	Result	Result	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		----	<0.002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	----	**0.47**	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		----	<0.002	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		----	<0.002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		----	<0.002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		----	<0.002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		----	<0.002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		----	<0.005	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	<0.05	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		----	<0.005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		----	<0.002	----	----	----
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		----	<0.005	----	----	----
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	QC105	QC500	MC_OMP01	----	----
				Sampling date / time	20-Nov-2025 00:00	21-Nov-2025 00:00	19-Nov-2025 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2537583-065	ES2537583-066	ES2537583-080	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		----	<0.005	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		----	<0.005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		----	<0.005	----	----	----
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	0.002	µg/L		----	<0.002	----	----	----
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	0.002	µg/L		----	<0.002	----	----	----
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	0.005	µg/L		----	<0.005	----	----	----
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	0.005	µg/L		----	<0.005	----	----	----
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	0.005	µg/L		----	<0.005	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	QC105	QC500	MC_OMP01	----	----
				Sampling date / time	20-Nov-2025 00:00	21-Nov-2025 00:00	19-Nov-2025 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2537583-065	ES2537583-066	ES2537583-080	--------	--------
					Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
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	0.005	µg/L		----	<0.005	----	----	----
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	----	0.002	µg/L		----	<0.002	----	----	----
Sum of PFAS	----	0.01	µg/L		**0.70**	----	**27.1**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		----	<0.002	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.33**	----	**22.8**	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		----	<0.002	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.67**	----	**25.5**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		----	**108**	----	----	----
13C4-PFOS	----	0.02	%		**95.7**	----	**99.3**	----	----
13C8-PFOA	----	0.002	%		----	**100**	----	----	----
13C8-PFOA	----	0.02	%		**89.4**	----	**88.4**	----	----

Surrogate Control Limits

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

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2537583-AB**	Page	: 1 of 5
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 08:45
Order number	: ----	Date Analysis Commenced	: 03-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 12:13
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- 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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, 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.

- Amendment (16/12/2025): This report has been amended following the request to add additional analysis EP231X Full Suite PFAS to samples 056, 057, and 058.
- Amendment (12/01/2026): This report has been amended following the request to organise spilt reports as requested by Michelle Agnew.
- Amendment (12/02/2026): This report has been amended following the request to update sample ID #44 to WC-03_BORE and #45 to WC-04 as requested by Michelle Agnew.
- 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	ID008_SS2	----	----	----	----
			Sampling date / time	20-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2537583-052	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**27.8**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0052**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	**0.0004**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	**0.0004**	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	**0.0004**	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	**0.0005**	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	**0.0003**	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	ID008_SS2	----	----	----	----
				Sampling date / time	20-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-052	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0072**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0052**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0056**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**91.0**	----	----	----	----
13C8-PFOA	----	0.0002	%		**91.4**	----	----	----	----

Surrogate Control Limits

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2537583-AC**	Page	: 1 of 5
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 08:45
Order number	: ----	Date Analysis Commenced	: 03-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 12:13
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- 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*
Alex Rossi	Organic Chemist	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.
- Amendment (16/12/2025): This report has been amended following the request to add additional analysis EP231X Full Suite PFAS to samples 056, 057, and 058.
- Amendment (12/01/2026): This report has been amended following the request to organise spilt reports as requested by Michelle Agnew.
- Amendment (12/02/2026): This report has been amended following the request to update sample ID #44 to WC-03_BORE and #45 to WC-04 as requested by Michelle Agnew.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ID013_BORE	----	----	----	----
				Sampling date / time	17-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-029	--------	--------	--------	--------
					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	ID013_BORE	----	----	----	----
				Sampling date / time	17-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-029	--------	--------	--------	--------
					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	%		**96.5**	----	----	----	----
13C8-PFOA	----	0.02	%		**89.9**	----	----	----	----

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	: **ES2537583-AD**	Page	: 1 of 5
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 08:45
Order number	: ----	Date Analysis Commenced	: 03-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 12:13
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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- Analytical Results
- Surrogate Control Limits

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Signatories

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Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW

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- Amendment (12/01/2026): This report has been amended following the request to organise spilt reports as requested by Michelle Agnew.
- Amendment (12/02/2026): This report has been amended following the request to update sample ID #44 to WC-03_BORE and #45 to WC-04 as requested by Michelle Agnew.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ID014_BORE	----	----	----	----
				Sampling date / time	17-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-030	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.31**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.26**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**2.20**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.13**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**2.90**	----	----	----	----
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		**0.11**	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.35**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.06**	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.13**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ID014_BORE	----	----	----	----
				Sampling date / time	17-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-030	--------	--------	--------	--------
					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		**6.57**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**5.10**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**6.06**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.7**	----	----	----	----
13C8-PFOA	----	0.02	%		**90.3**	----	----	----	----

Surrogate Control Limits

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2537583-AE**	Page	: 1 of 5
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 08:45
Order number	: ----	Date Analysis Commenced	: 03-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 12:13
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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Accredited for compliance with
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Signatories

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Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ID019_BORE	----	----	----	----
				Sampling date / time	20-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-031	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.03**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.02**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.12**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.07**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.02**	----	----	----	----
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	ID019_BORE	----	----	----	----
				Sampling date / time	20-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-031	--------	--------	--------	--------
					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		**0.26**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.19**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.24**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.6**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.4**	----	----	----	----

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	: **ES2537583-AF**	Page	: 1 of 5
Amendment	: **2**		
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Order number	: ----	Date Analysis Commenced	: 03-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 12:13
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	ID016_BORE	----	----	----	----
				Sampling date / time	17-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-032	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.09**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
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	ID016_BORE	----	----	----	----
				Sampling date / time	17-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-032	--------	--------	--------	--------
					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		**0.09**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.09**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.09**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.9**	----	----	----	----
13C8-PFOA	----	0.02	%		**91.0**	----	----	----	----

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	: **ES2537583-AG**	Page	: 1 of 5
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 08:45
Order number	: ----	Date Analysis Commenced	: 05-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 12:13
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- 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*
Alex Rossi	Organic Chemist	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.
- Amendment (16/12/2025): This report has been amended following the request to add additional analysis EP231X Full Suite PFAS to samples 056, 057, and 058.
- Amendment (12/01/2026): This report has been amended following the request to organise spilt reports as requested by Michelle Agnew.
- Amendment (12/02/2026): This report has been amended following the request to update sample ID #44 to WC-03_BORE and #45 to WC-04 as requested by Michelle Agnew.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WC-03_BORE	----	----	----	----
				Sampling date / time	18-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-044	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		**0.009**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		**0.008**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		**0.016**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		**0.004**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		<0.002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		<0.002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		<0.002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		<0.005	----	----	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		<0.005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		<0.002	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WC-03_BORE	----	----	----	----
				Sampling date / time	18-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-044	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		<0.005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		<0.005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		<0.005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		<0.005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L		<0.002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		<0.002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		**0.037**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		**0.020**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		**0.029**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		**102**	----	----	----	----
13C8-PFOA	----	0.002	%		**92.4**	----	----	----	----

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	: **ES2537583-AH**	Page	: 1 of 5
Amendment	: **2**		
Client	: **SENVERSA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MICHELLE AGNEW	Contact	: Andrew Wotherspoon
Address	: Level 24, 1 Market St, SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: C17776 Norfolk DSI	Date Samples Received	: 24-Nov-2025 08:45
Order number	: ----	Date Analysis Commenced	: 05-Dec-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2026 12:13
Sampler	: Michelle Agnew Hollie Dunsten		
Site	: ----		
Quote number	: EN/000		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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- 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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW

General Comments

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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.

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- Amendment (12/02/2026): This report has been amended following the request to update sample ID #44 to WC-03_BORE and #45 to WC-04 as requested by Michelle Agnew.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WC-04	----	----	----	----
				Sampling date / time	18-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-045	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.002	µg/L		<0.002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.002	µg/L		<0.002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.002	µg/L		<0.002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.002	µg/L		<0.002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.002	µg/L		<0.002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.002	µg/L		<0.002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.002	µg/L		<0.002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.002	µg/L		<0.002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.002	µg/L		<0.002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.005	µg/L		<0.005	----	----	----	----
Perfluorohexadecanoic acid (PFHxDA)	67905-19-5	0.005	µg/L		<0.005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.002	µg/L		<0.002	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WC-04	----	----	----	----
				Sampling date / time	18-Nov-2025 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2537583-045	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.005	µg/L		<0.005	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.005	µg/L		<0.005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.005	µg/L		<0.005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.005	µg/L		<0.005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.002	µg/L		<0.002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.002	µg/L		<0.002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.005	µg/L		<0.005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.005	µg/L		<0.005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.005	µg/L		<0.005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.005	µg/L		<0.005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.002	µg/L		<0.002	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.002	µg/L		<0.002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.002	µg/L		<0.002	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.002	%		**101**	----	----	----	----
13C8-PFOA	----	0.002	%		**93.0**	----	----	----	----

Surrogate Control Limits

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

Chain of Custody Documentation

senversa

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address: 277-289 Woodpark Road, Smithfield
Contact: Sample Receipt
Phone:

Job Number:	C17776	Purchase Order:	Senversa natural quote.
Project Name:	Norfolk DSI	Quote No:	
Sampled By:	Michelle Agnew, Hollie Dunsten	Turn Around Time:	STD.
Project Manager:	Michelle Agnew	Page:	1 of 45
Email Report To:	michelle.agnew@senversa.com.au	Phone/Mobile:	0448910424.

	Sample Information				Container Information		Analysis Required												Comments: e.g. Highly contamina sample; hazardous materials pres LORs etc.
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	PFAS Standard.	PFAS		Email Analysis Request.								HOLD	
1	WWII_DAM	WATER	20/11/25			X	X			X									
2	MC_OMP01					X	X			X									
3	MC_OMP02					X	X			X									
4	MC_OMP03					X	X			X									
5	MC_OMP04a					X	X			X									
6	MC_OMP05a					X	X			X									
7	MC_OMP06					X	X			X									
8	MC_OMP07a					X	X			X									
~~9~~	~~MC_OMP08~~					X	X			X									
9	MC_OMP09.		17/11/25			X	X			X									
10	MC_OMP10		19/11/25			X	X			X									
11	MC_OMP11		17/11/25			X	X			X									
12	WC_OMP01		"			X	X			X									
13	WC_OMP02		"			X	X			X									
14	~~WC_OMP03~~ ✓		18/11/25			X	X			X									
15	WC_OMP04_DUCKDAM		"			X	X			X									
16	~~WC_OMP05~~ ✓		"			X	X			X									
17	COCKPIT_SW01		18/11/25			X	X			X									
18	FRE_TAP1		19/11/25			X		X		X									
19	FRE_TAP2		19/11/25			X	X			X									
Total	~~20~~ 19																		

Subcon / Forward Lab / Split WO:
ENVIROLAB
Lab / Analysis: ~~EP200 (x20)~~ ~~EP355 (x30)~~
Relinquished Date: ~~21/11/25 23:45~~
WO: ~~ES25375~~

Environmental Div
Sydney
Work Order Referen
ES25375

Telephone : + 61-2-8784 8555

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name: Michelle Agnew. Signature: Agnew Date: 21/11/25

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature: NS	Date: 24/11/25
Of:	Time:	Date/Time:	Of: ALS	Time: 0845
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

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senversa

Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address: 277-289 Woodpark Road, Smithfield
Contact: Sample Receipt
Phone:

Job Number:	C17776	Purchase Order:	
Project Name:	Norfolk DSI	Quote No:	
Sampled By:		Turn Around Time:	
Project Manager:		Page:	2 of 5
Email Report To:	michelle.agnew@senversa.com.au	Phone/Mobile:	

	Sample Information				Container Information		Analysis Required												Comments: e.g. Highly contaminated sample; hazardous materials present; LORs etc.
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	PFAS standard	PFAS		Email analysis request							HOLD		
20	DEPOT_TAP1	WATER	17/11/25					X											
21	DEPOT_TANK1		"				X												
22	DEPOT_TANK2		"				X												
23	DEPOT_TANK3		"				X												
24	A_TAP1		17/11/25				X	X											
25	AIRPORT_BORE		"				X												
26	PWS_HEAD_DAM		19/11/25				X												
27	PWS_HEAD_TOILET		"				X												
28	PWS_BUMBORA_TOILET		"				X												
29	IDO13_BORE		17/11/25				X												
30	IDO14_BORE		"				X												
31	IDO15_BORE		20/11/25				X												
32	IDO16_BORE		17/11/25				X												
33	PWS_HOSP_TAP1		18/11/25					X											
34	PWS_HOSP_TAP3							X											
35	PWS_HOSP_TAP4							X											
36	PWS_HOSP_TAP5							X											
37	PWS_HOSP_TAP6							X											
38	PWS_HOSP_TANK1							X											
39	A_TAP2		17/11/25					X											
Total			20																

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	Sampler Name: Michelle Agnew	Signature: MAgnew	Date: 21/11/25

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

23 (54)

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Chain of Custody Documentation

Senversa Pty Ltd
www.senversa.com.au
ABN 89 132 231 380

Laboratory: ALS NSW
Address: 277-289 Woodpark Road, Smithfield
Contact: Sample Receipt
Phone:

Job Number:	C17776	Purchase Order:	
Project Name:	Norfolk DSI	Quote No:	
Sampled By:		Turn Around Time:	
Project Manager:		Page:	3 of 5
Email Report To:	michelle.agnew@senversa.com.au	Phone/Mobile:	

Sample Information					Container Information		Analysis Required												
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	PFAS standard	PFAS		Email Analysis Request							HOLD	Comments: e.g. Highly contaminate sample; hazardous materials prese LORs etc.
44	A-TAP316A	water	17/11/25					X										
45	A_TAP5		"					X										
46	A_TAP4		19/11/25					X										
47	A_TAP5		"					X										
48	WC01		18/11/25					X										
49	WC02		18/11/25					X										
50	WC_OMPC4_SD.	SED.	19/11/25				X											
51	FRE_TAP6	water	"					X										
52	~~MW~~ ELEC_TAP1		"					X										
53	WASTE_TAP1		20/11/25															
54	COUNCIL_TAP1																	
55	10008_551	SOIL																
56	10008_552																	
57	~~10008_DIGITAL~~																	
58	~~10008~~A_TRUCKFILL_552																	
59	A_TRUCKFILL_551																	
60	BALL_553	2 SOIL	21/11/25															
61	BALL_554		"															
62	BALL_555		"															
63	BALL_SD1	sed	"															
Total	15+																	

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name: Michelle Agnew. Signature: MAgnew Date: 21/11/25.

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature: NS	Date: 24/11/25
Of:	Time:	Date/Time:	Of: NES	Time: 0845
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide ($NaOH$)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____ MD

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Chain of Custody Documentation

Senversa Pty Ltd
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ABN 89 132 231 380

Laboratory:
Address:
Contact:
Phone:

Job Number:	C17776	Purchase Order:	
Project Name:	Norfolk DSI	Quote No:	
Sampled By:		Turn Around Time:	
Project Manager:		Page:	4 of 4 5
Email Report To:	michelle.agnew@senversa.com.au	Phone/Mobile:	

Sample Information					Container Information		Analysis Required													
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles	~~PFAS~~ standard	PFAS		Email Analysis request						Send to Enviroiab	HOLD	Comments: e.g. Highly contaminated sample; hazardous materials present; LORs etc.
60	QC100	SED	19/11/25														X	
61	QC101	WATER	20/11/25				X											
62	QC102						X											
63	QC103						X											
64	QC104																	
65	QC105																	
	~~QC106~~																	
4	QC200	SED	19/11/25													X		
1	QC201	WATER	20/11/25													XX		
1	QC202															X		
1	QC203															XX		
1	QC204															XXX		
1	QC205															XX		
1	~~QC206~~															X		
66	QC500	WATER	20/11/25														X	PFAS PFOS RPN
67	QC300	"	20/11/25															
	~~WATER SPLIT~~																	
68	BALL_SW1	water	21/11/25															
Total	14																	

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:

Sampler Name: michelle Agnew
Signature: mAgnew
Date: 21/11/25

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

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Chain of Custody Documentation

Senversa Pty Ltd
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ABN 89 132 231 380

Laboratory: ALS NSW
Address:
Contact:
Phone:

Job Number:	C17776	Purchase Order:	
Project Name:	Norfolk DSI	Quote No:	Senversa National
Sampled By:	MA, HD	Turn Around Time:	std
Project Manager:	Michelle Agnew	Page:	5 of 5
Email Report To:	michelle.agnew@senversa.com.au	Phone/Mobile:	0448910424

Sample Information					Container Information		Analysis Required													Comments: e.g. Highly contaminate sample; hazardous materials preser LORs etc.
Lab ID	Sample ID	Matrix *	Date	Time	Type / Code	Total Bottles													HOLD	
69	SWC_COMPOY_SO	SOIL	19/11/25																	
70	DUP08_551		20/11/25																	
71	DUP08_551		20/11/25																	
72	QC100		19/11/25																	
~~73~~	QC200		"																	
74	A_TRUCKFILL_551		20/11/25																	
75	A_TRUCKFILL_552		"																	
76	BALL_554		21/11/25																	
77	BALL_555		"																	
78	BALL_553		"																	
79	BALL_SD1		"																	
Total																				

Sampler: I attest that proper field sampling procedures in accordance with Senversa standard procedures and/or project specifications were used during the collection of these samples:	Sampler Name: Michelle Agnew	Signature: MAgnew	Date: 21/11/25

Relinquished By:		Method of Shipment (if applicable):	Received by:	
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature: NO	Date: 24/11/25
Of:	Time:	Date/Time:	Of: AV	Time: 0811
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:
Name/Signature:	Date:	Carrier / Reference #:	Name/Signature:	Date:
Of:	Time:	Date/Time:	Of:	Time:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Acid (HNO_3) Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide (NaOH)/Cadmium (Cd) Preserved; S = Sodium Hydroxide Preserved Plastic; STH = Sodium thiosulfate preserved plastic; V = VOA Vial Hydochloric Acid (HCl) Preserved; VS = VOA Vial Sulphuric Preserved; VSA = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; UA = Unpreserved Amber Glass; L=Lugol's iodine preserved white plastic bottle; SW= sulfuric acid preserved wide mouth glass jar

Completed by: _____
Checked by: _____

Appendix E: Mann Kendall Analysis

Location Code	Monitoring Zone	Perfluorooctanoic acid (PFOA)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS
		µg/L	µg/L	µg/L
AIRPORT_BORE	Mission Creek	TDn, S=-10, N=6, P=0.0426	TDn, S=-13, N=6, P=0.0121	TDn, S=-13, N=6, P=0.0121
WWII_DAM	Mission Creek	TDn, S=-11, N=6, P=0.0301	TDn, S=-11, N=6, P=0.0301	TDn, S=-11, N=6, P=0.0301
Cockpit_SW01	Cascade Creek	NT, S=0, N=6, P=0.5000	NT, S=-5, N=6, P=0.2178	NT, S=-7, N=6, P=0.1212
ID013_BORE	Mission Creek	NT, S=0, N=4, P=0.5000	NT, S=0, N=4, P=0.5000	NT, S=0, N=4, P=0.5000
ID014_BORE	Mission Creek	NT, LH, S=8, N=6, P=0.0903	NT, LH, S=7, N=6, P=0.1298	NT, S=5, N=6, P=0.2262
ID015_BORE	Mission Creek	NT, S=-2, N=5, P=0.3970	NT, S=-2, N=5, P=0.4032	NT, S=-4, N=5, P=0.2312
ID016_BORE	Mission Creek	NT, S=0, N=5, P=0.5000	NT, S=0, N=5, P=0.5000	NT, S=0, N=5, P=0.5000
MC_OMP01	Mission Creek	NT, S=-6, N=5, P=0.1103	NT, S=-6, N=5, P=0.1103	TDn, S=-8, N=5, P=0.0432
MC_OMP02	Mission Creek	NT, S=6, N=5, P=0.0958	NT, S=3, N=5, P=0.3067	NT, S=4, N=5, P=0.2312
MC_OMP03	Mission Creek	NT, S=-2, N=5, P=0.4032	NT, S=-2, N=5, P=0.4032	NT, S=-2, N=5, P=0.4032
MC_OMP04	Mission Creek	NT, S=-4, N=4, P=0.1541	NT, S=-2, N=4, P=0.3670	NT, S=-2, N=4, P=0.3670
MC_OMP05	Mission Creek	NT, S=-5, N=4, P=0.0743	NT, S=0, N=4, P=0.5000	NT, S=-2, N=4, P=0.3670
MC_OMP06	Mission Creek	NT, S=-5, N=5, P=0.1561	NT, S=-2, N=5, P=0.4032	NT, S=-4, N=5, P=0.2312
MC_OMP07	Mission Creek	TDn, S=-6, N=4, P=0.0447	NT, S=2, N=4, P=0.3670	NT, S=2, N=4, P=0.3670
MC_OMP08	Mission Creek	NT, S=0, N=4, P=0.5000	NT, S=0, N=4, P=0.5000	NT, S=0, N=4, P=0.5000
MC_OMP09	Mission Creek	NT, S=5, N=5, P=0.1561	NT, S=4, N=5, P=0.2312	NT, S=4, N=5, P=0.2312
MC_OMP10	Mission Creek	NT, S=-5, N=4, P=0.0743	NT, S=-4, N=4, P=0.1541	NT, S=-4, N=4, P=0.1541
MC_OMP11	Mission Creek	NT, S=0, N=4, P=0.5000	NT, S=-2, N=4, P=0.3670	NT, S=-2, N=4, P=0.3670
PWS_HEAD_DAM	Headstone Creek	NT, S=0, N=6, P=0.5000	NT, S=-5, N=6, P=0.1208	NT, S=-5, N=6, P=0.1208
WC_OMP01	Watermill Creek	NT, S=2, N=5, P=0.3864	NT, S=-1, N=5, P=0.5000	NT, S=0, N=5, P=0.5000
WC_OMP02	Watermill Creek	NT, S=-4, N=5, P=0.1444	NT, S=-1, N=5, P=0.5000	NT, S=-3, N=5, P=0.3067
WC_OMP03	Watermill Creek	NT, S=0, N=6, P=0.5000	NT, S=-3, N=6, P=0.3484	NT, S=-3, N=6, P=0.3536
WC_OMP04_DUCK DAM	Watermill Creek	NT, S=0, N=6, P=0.5000	NT, S=6, N=6, P=0.1570	NT, LH, S=4, N=6, P=0.2830
WC_OMP05	Watermill Creek	NT, S=0, N=5, P=0.5000	NT, S=1, N=5, P=0.5000	NT, S=1, N=5, P=0.5000

Legend

S: Mann-Kendall score
N: number of samples
P: p-value

NT	No trend
TDn	Downward trend
LH	Latest result highest recorded

Analysed in Esdat version 5.1.26042.0, significance level 0.05 (95% confidence)

Senversa Pty Ltd

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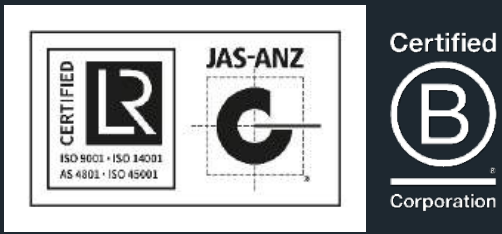
Facebook: Senversa



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