

# PFAS Ongoing Monitoring Report

March 2023 & July/August 2023

RAAF Williams (Laverton)

DEF19008



Prepared for  
Department of Defence

16 July 2024



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## Executive Summary

### Background

Cardno (now Stantec) was engaged by the Department of Defence (“Defence”) to carry out the Per- and Poly-Fluoroalkyl Substances (PFAS) Ongoing Monitoring Plan (OMP) at RAAF Williams Laverton (“the Site”). The location of the Site is displayed in Figure 1 of Appendix A.

The Management Area (MA) is comprised of both On-Site and Off-Site areas (as shown on Figure 1, Appendix A). The “On-Site Management and Monitoring Area” is defined as the current extents of RAAF Williams (Laverton) (‘the Site’). The “Off-Site Monitoring Area” includes private properties and public land to the west (former Base extents, now referred to as Williams Landing), southwest and south of the Site, and waterbodies and adjacent land situated hydraulically downgradient of the Site, including Skeleton Creek and Sanctuary Lakes.

The 2023 ongoing monitoring program was completed between January 2023 and December 2023, and including biannual monitoring events in March 2023 (summer) and July/August 2023 (winter). Sampling under these different climatic conditions provides a better understanding of the movement and concentrations of PFAS in the environment rather than relying on results from a single event under one set of climatic conditions.

### Objective

The objective of the ongoing monitoring, as outlined in the OMP (Aurecon, 2022a) is to assess the performance of the current management systems and monitor changes in PFAS contaminant distribution. The objectives of the ongoing monitoring program are to:

- > Implement a program of surface water and groundwater monitoring to continue to assess changes in risk from PFAS within the environment, focusing on where there is an identified potential risk requiring management under the PFAS Management Area Plan (PMAP; Aurecon, 2022b); and
- > Assess the seasonal effects of PFAS concentrations in surface water and groundwater, including during or immediately following extreme or high rainfall events.

### Monitoring Scope

The 2023 monitoring period comprised two monitoring events:

- > Event 1 (E1), the first OMP sampling event in March 2023, and
- > Event 2 (E2), the second OMP sampling event in July/August 2023.

The scope of work comprised monitoring of 35 groundwater wells and 23 surface water locations, as specified in the OMP. An additional 50 groundwater wells were gauged only during the events to evaluate whether any changes had occurred in the flow direction of groundwater.

Works were conducted in general accordance with the SAQP (Cardno, 2023), except as summarised in Section 3.2 of this report.

### Groundwater Results

#### *Groundwater Flow Direction*

Groundwater consistently flows in a in a south to southeasterly direction towards Skeleton Creek, which is important to understand as the direction of groundwater flow is used to monitor any movement of contamination. No significant changes in the groundwater flow regime have occurred over time.

Groundwater elevations across the MA appeared to be relatively stable between monitoring events. Groundwater elevations and flow direction will continue to be confirmed during subsequent biannual monitoring events.

### PFAS Concentrations

Overall, groundwater concentrations appear to fluctuate over time with no clear trend. While fluctuations have been observed, the majority of groundwater locations reported PFAS concentrations for the 2023 monitoring period within the same order of magnitude as the PFAS concentrations reported in the Detailed Site Investigation (DSI; Aurecon, 2020), with some exceptions noted below.

The following first-time detections, new exceedances of assessment criteria and significant changes in concentration were observed at select wells:

- > Two On-Site wells (MW109, MW211) reported first-time detections and/or new exceedances of ecological criteria around the Former Wet Testing Area (SA1).
- > One Off-Site well (MW123) reported a new exceedance of recreational criteria for PFOS+PFHxS along Skeleton Creek targeting downgradient of the Western Finger area (Source Area 2; SA2).
- > One On-Site monitoring well (MW115) reported a first-time detection of PFOS along the northern boundary of the Site.
- > One Off-Site monitoring well (MW137) reported a new exceedance of ecological criteria for PFOS in Williams Landing.
- > Two Off-Site wells (MW131, MW137) in Williams Landing reported an order of magnitude increase for PFOS in E1 compared to concentrations reported during the DSI.

#### What is an 'order of magnitude'?

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

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

Findings from the 2023 monitoring period supports the conclusions of the DSI that the highest concentrations of PFAS were generally identified within and adjacent to source areas, and that the soils and sediment within these source areas are continuing to act as a source of PFAS to groundwater (Aurecon, 2020). The highest groundwater PFAS concentrations reported during the 2023 monitoring period were in the vicinity of the Former Wet Testing Area (SA1), the Former GEMS Compound (SA4) and the Off-Site Former Primary Fire Training Area, now in the western portion of Williams Landing. As noted above, concentrations in two wells (MW130 and MW131) monitoring the Off-Site Former Primary Fire Training Area have increased by an order of magnitude from the concentrations reported during the DSI. There are currently no wells located downgradient of these locations to understand potential plume migration to the south toward the expected groundwater discharge point at Skeleton Creek. Additional wells have been proposed for installation to address this data gap.

As this Ongoing Monitoring Report (OMR) only covers the first two rounds of sampling, there is minimal data available for the assessment of trends. While fluctuations in concentration were observed, at this stage these changes are not considered to affect the nature, extent, or current understanding of PFAS within the MA. Continued ongoing monitoring will assist with determining any long-term trends.

### Surface Water Results

Overall, while fluctuations in concentration have been observed, the majority of surface water locations reported PFAS concentrations for the 2023 monitoring period within the same order of magnitude as historical data reported during the DSI (Aurecon, 2020).

A number of surface water locations reported both new maximums and new minimums during the 2023 monitoring period, with the majority of new maximums reported in E1, and new minimums reported in E2. This may be influenced by the volume of water present at the sampling location at the time of sampling, with a greater water body depth generally noted at most locations during E2. Additionally, fresher water being present at the time of sampling during E2, as indicated by the EC and TDS readings between events, as readings were lower during E2 at the majority of locations. There is insufficient data to establish trends with regards to whether these differences are related to seasonal influences, or differences in rainfall preceding the events, but further monitoring will assist with evaluating this and determining any long-term trends.

The following first-time detections, new exceedances of assessment criteria and significant changes in concentration were observed at select locations:

- > One On-Site location (SW034) reported a new exceedance of recreational criteria for PFOS+PFHxS during E1, located in a stormwater drain in the Former Wet Testing Area (SA1). This location also reported an order of magnitude increase for PFOS+PFHxS, PFOS and PFOA during E1. At the time of sampling during E1, low flow was observed with minimal water present and higher EC and TDS readings were recorded compared to E2.
- > One Off-Site location (SW073) reported a new exceedance of ecological criteria for PFOS during E1. At the time of sampling during E1, low flow was observed with minimal water present and higher EC and TDS readings were recorded compared to E2. This location is downgradient of the Western Finger (SA2) discharge point where surface water enters Skeleton Creek.
- > One On-Site location (SW005) reported an order of magnitude increase for PFOS+PFHxS during E2, when compared to concentrations when the location was last sampled in 2019. No flow and stagnant water was observed at the time of sampling. This location targets downgradient of the Former Secondary Fire Training Area (Source Area 3; SA3) within Doherty's Drain where it enters Laverton Creek.

Findings from the 2023 monitoring period supports the conclusions of the DSI that the highest concentrations of PFAS were generally identified within and adjacent to source areas (Aurecon, 2020). The highest PFAS concentrations for the 2023 monitoring period were reported at SW034, targeting drainage from the Former Wet Testing Area (SA1). While some increases in concentration have been reported On-Site, the points of discharge in the southwestern portion of the Site (SW043) and eastern portion of the Site (SW015) have continued to report PFAS concentrations below adopted ecological and recreational criteria throughout the 2023 monitoring period.

Three locations downgradient of the Site within Skeleton Creek (SW020, SW073 and SW078) reported concentrations above adopted ecological criteria, but below recreational criteria, consistent with the findings of the DSI (Aurecon, 2020). The remaining locations within Skeleton Creek and within Sanctuary Lakes reported results below adopted ecological and recreational criteria.

Overall, while fluctuations in concentration were observed, at this stage these changes are not considered to affect the nature, extent, or current understanding of PFAS within the MA. Continued ongoing monitoring will assist with determining any long-term trends.

### Risk Summary

The 2023 monitoring events did not identify any changes to the risk profile as described in the 2022 PMAP<sup>1</sup> for the MA. The 2023 monitoring results were generally within the range of historical data for all media tested. Select locations that reported increases in concentration during the 2023 monitoring period were mostly at locations near known source areas, do not indicate new sources or pathways, and are not considered to change the overall risk profile based on the available data.

The Conceptual Site Model (CSM) was reviewed for any changes in potential exposure pathways for human health and ecological receptors compared to those identified during the DSI (Aurecon, 2020). Although some concentration changes were observed over the monitoring period, no new PFAS sources, new pathways, or new receptors were identified, and therefore no changes to the current CSM were required.

### Conclusions

The 2023 monitoring events met the objective of the OMP and were carried out in general accordance with the SAQP. Reported results were generally within the same order of magnitude as historical data for all media tested. However, there were a few localised first-time detections/new exceedances of assessment criteria, but these do not indicate new sources or pathways as they were mostly reported at locations near known source areas and are not considered to change the overall risk profile based on the available data.

As only two monitoring events have been completed as part of the OMP, in different seasons, trends are difficult to infer and any resultant correlation factor would be of a low confidence given the limited dataset. Further monitoring as part of the OMP is required to determine long-term trends and to assess for any potential future changes to the current risk profile.

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<sup>1</sup> available online at <https://www.defence.gov.au/about/locations-property/pfas/pfas-management-sites/raaf-base-williams-laverton-and-point-cook>

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## Table of Abbreviations and Units

### Chemical Names

|       |  |
|-------|--|
| DO    | Dissolved Oxygen                           |
| PFAS  | Per- and Poly-fluoroalkyl Substances       |
| PFHxS | Perfluorohexane Sulfonate                  |
| PFOA  | Perfluorooctanoic Acid                     |
| PFOS  | Perfluorooctane Sulfonate                  |
| TDS   | Total Dissolved Solids (salinity of water) |

### Technical Terms

|        |   |
|--------|---|
| AFFF   | Aqueous Film-Forming Foam   |
| AHD    | Australian Height Datum   |
| ANZECC | Australian and New Zealand Environment and Conservation Council         |
| AS     | Australian Standard   |
| BGL    | Below Ground Level  |
| COC    | Chain of Custody  |
| CSM    | Conceptual Site Model   |
| DSI    | Detailed Site Investigation   |
| DQI    | Data Quality Indicator  |
| DQO    | Data Quality Objective  |
| EC     | Electrical Conductivity   |
| EPA    | Environment Protection Authority  |
| ESA    | Environmental Site Assessment   |
| HEPA   | Heads of Environmental Protection Authority's Australia and New Zealand |
| LOR    | Limit of Reporting  |
| N/A    | Not Applicable  |
| NATA   | National Association of Testing Authorities                             |
| NEPC   | National Environment Protection Council                                 |
| NEPM   | National Environmental Protection Measure                               |
| NEMP   | National Environmental Management Plan                                  |
| NHMRC  | National Health and Medical Research Council                            |
| QA     | Quality Assurance   |
| QC     | Quality Control   |
| RPD    | Relative Percentage Difference  |
| SAQP   | Sampling and Analysis Quality Plan                                      |
| S-P-R  | Source-Pathway-Receptor   |

### Units

|      |                           |
|------|---------------------------|
| ha   | Hectares                  |
| mBGL | Metres Below Ground Level |



|       |  |
|-------|--|
| mbTOC | Metres Below Top of Casing                                     |
| mg/kg | Milligram per Kilogram (approximately equivalent to ppm)       |
| mg/L  | Milligram per Litre  |
| ppm   | Parts per Million  |
| µg/L  | Micrograms per Litre   |
| µS/cm | Micro Siemens per Centimetre (Electrical Conductivity – Water) |

## Site Specific

|       |   |
|-------|---|
| ESdat | Environmental Data Management Software              |
| FTG   | Fire Training Ground                                |
| MA    | Management Area                                     |
| OMP   | Ongoing Monitoring Plan                             |
| PMAP  | PFAS Management Area Plan                           |
| SA1   | Source Area 1 – Former Wet Testing Area             |
| SA2   | Source Area 2 – Western Finger Area                 |
| SA3   | Source Area 3 – Former Secondary Fire Training Area |
| SA4   | Source Area 4 – Former GEMS Compound                |

# 1 Introduction

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Cardno (now Stantec) was engaged by the Department of Defence (“Defence”) to carry out the Per- and Poly-Fluoroalkyl Substances (PFAS) Ongoing Monitoring Plan (OMP) at RAAF Williams Laverton (“the Site”). The OMP applies to RAAF Williams (Laverton), and surrounding areas that, together with the Site, make up the “Management Area” (MA).

The monitoring was carried out in general accordance with the scope and limitations presented in Cardno’s Sampling and Analysis Quality Plan (SAQP):

- > Cardno, 25 August 2023. Reference: DEF19008\_OMP002.6.2\_Laverton, ‘PFAS Ongoing Monitoring Plan Sampling and Analysis Quality Plan (SAQP) RAAF Williams Laverton, Rev 3.

For the purposes of this report:

- > The “On-Site Management and Monitoring Area” is defined as the current extents of RAAF Williams (Laverton) (‘the Site’).
- > The “Off-Site Monitoring Area” includes private properties and public land to the west (former Base extents, now referred to as Williams Landing), southwest and south of the Site, and waterbodies and adjacent land situated hydraulically downgradient of the Site, including Skeleton Creek and Sanctuary Lakes.
- > The “Management Area” encompasses the “On-Site Management and Monitoring Area” and the “Off-Site Monitoring Area”.

The location of the Site, MA, the On-Site Monitoring Area and the Off-Site Monitoring Area are displayed in Figure 1 of Appendix A.

## 1.1 Purpose and Objective

The objective of the ongoing monitoring, as outlined in the OMP (Aurecon, 2022a) is to assess the performance of the current management systems and monitor changes in PFAS contaminant distribution. The objectives of the ongoing monitoring program are to:

- > Implement a program of surface water and groundwater monitoring to continue to assess changes in risk from PFAS within the environment, focusing on where there is an identified potential risk requiring management under the PFAS Management Area Plan (PMAP; Aurecon, 2022b); and
- > Assess the season effects of PFAS concentrations in surface water and groundwater, including during or immediately following extreme or high rainfall events.

The 2023 ongoing monitoring program was completed between January 2023 and December 2023, and including biannual monitoring events in March 2023 (summer) and July/August 2023 (winter). The purpose of this PFAS Ongoing Monitoring Report (OMR) is to present and evaluate the ongoing monitoring program data from the monitoring period within the context of the PMAP, historical monitoring data, and other ancillary information, to achieve the following objectives in accordance with the OMP (Aurecon, 2022a):

- > Evaluate any changes in risk from PFAS in groundwater and surface water associated with Site sources of PFAS derived from AFFF;
- > Measure the seasonal effects of PFAS concentrations in surface water and groundwater, including during, or immediately following, extreme or high rainfall events;
- > Monitor the migration of PFAS in groundwater and surface water from the sites;
- > Evaluate the nature and extent of PFAS impact in surface water and groundwater;
- > Provide confirmation of the current understanding of risk; and
- > Provide supporting data for assessment of management actions, where relevant.

## 1.2 Scope

Cardno carried out the following tasks to satisfy the purpose and objectives of this assessment:

- > Reviewed monitoring data from the March 2023 (E1) and July/August 2023 (E2) OMP sampling events, and available data since 2016;

- > Undertook qualitative analysis of PFAS concentration trends; and
- > Prepared this report to provide findings relevant to the objectives of the assessment.

Note that the OMR does not:

- > Provide recommendations for changes to state or territory precautionary advice.
- > Recommend changes or amendments to remediation measures or activities.
- > Provide health advice, such as recommendations to limit PFAS exposure through food consumption.

### 1.3 Relevant Guidelines

This assessment has been undertaken in general accordance with applicable industry standards for a site investigation for the purpose, objectives and scope identified in this report. These standards are set out in:

- > Australian and New Zealand Guidelines (2018), Australian and New Zealand Guidelines for Fresh and Marine Water Quality.
- > Australian Standard (2005), AS 4482-2005, Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 - Non-volatile and semi-volatile compounds<sup>2</sup>.
- > Department of Defence (2019), Pollution Prevention Management Manual – Annex 1L: Pollution Prevention Guidance - Routine Water Quality Monitoring.
- > Department of Defence (2021), Contamination Management Manual (DCMM), Annex L – Data Management, August 2019, Amended June 2021.
- > Department of Defence, Department of Energy (2018), Quality System Manual Schedule B15.
- > EPA Victoria (2022), Groundwater Sampling Guidelines, Publication 669.1, February 2022.
- > EPA Victoria (2009), Sampling and Analysis of Waters, Wastewaters, Soils and Wastes, Publication 701, June 2009.
- > EPA Victoria (2020), Interim Position Statement on PFAS, Publication 1669.4, October 2020.
- > Heads of Environmental Protection Authority's Australia and New Zealand (HEPA) (2020), PFAS National Environmental Management Plan (NEMP) Version 2.0, January 2020.
- > National Environment Protection Council (NEPC) (2013), National Environmental Protection (Assessment of Site Contamination) Measure (1999, as amended 2013) (ASC NEPM).
- > National Health and Medical Research Council (NHMRC) (2019), Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water, August 2019.
- > Standards Australia (1998), AS/NZ 5667:1998, Water quality – sampling.
- > U.S. Environmental Protection Agency (USEPA) (2006), Guidance for the Data Quality Objectives Process (EPA QA/G-4).
- > USEPA (2002), Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8).

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<sup>2</sup> AS 4482.1-2005 is currently 'Withdrawn', but the assessment will consider it still to be suitable as a state of knowledge document until superseded.

## 2 Site Setting

A detailed description of the Site is provided in the SAQP presented in Appendix E, which is summarised below.

RAAF Williams (Laverton) is located 18 km west-southwest of the Melbourne central business district (CBD) and occupies an area of approximately 150 ha. The original extent of the Base (including the airfield) when it was established by the RAAF in 1921 was approximately 430 ha.

The main activities at the Site overtime have included flight training, flight programs, general aircraft testing, air surveys and air shows. In recent times, the Site is used for following:

- > Maintenance and administration buildings.
- > Non-flight related training facilities and storage.
- > Temporary accommodation.
- > Childcare Centre.
- > Sporting Facilities.

### 2.1 Site Description

#### 2.1.1 Surrounding Land Uses and Zoning

Land surrounding the Site is zoned 'General Residential (GRZ3)', 'Public Park and Recreation (PPRZ)', 'Public Use Zone – Education (PUZ2)', 'Neighbourhood Residential Zone (NRZ5)' and 'Industrial 3 Zone (IN3Z)'.

The current surrounding land uses are listed in Table 2-1.

Table 2-1 Surrounding Land Uses

| Direction    | Land Use   |
|--------------|--|
| <b>North</b> | Land directly the north of the Site includes Laurie Emmins Reserve, a public open space comprising a picnic area, recreational lake and scout hall. Doherty's Drain and Laverton Creek flow into the northern portion of the Site.   |
| <b>East</b>  | The land immediately to the east of the Site contains private residential properties in the suburb of Laverton. Laverton Secondary School is located approximately 100 m east of the Site. There is a mix of land used for residential, educational land uses and public open spaces.  |
| <b>South</b> | The land south of the Site includes a railway corridor, train station (Aircraft station) and light industrial and commercial area. There are some private residential properties in the suburbs of Laverton and Altona Meadows. Skeleton Creek is located a further 1 km to the south, which eventually flows through the Cheetham wetlands (4 km southeast) and discharges to Port Phillip Bay. |
| <b>West</b>  | The former RAAF Williams airfield was located west of the Site and has been developed into the Williams Landing development area, which includes residential properties, sporting fields, wetlands, and a commercial precinct in the Town Centre.  |

Source: Google Maps, 2024

#### 2.1.2 Environmental Setting

Key details defining the Site are summarised in Table 2-2. See Figure 2, Appendix A for key features.

Table 2-2 Key Site Details

| Setting                     | Description  |
|-----------------------------|--|
| <b>Regional Meteorology</b> | Climate data for the Site available from 1941-2023 from the nearest station On-Site, at Laverton RAAF (#087031) (Bureau of Meteorology (BOM) 2024) <sup>1</sup> . Mean annual rainfall is 535.4 mm. March is on average the driest month with an average rainfall of 34.6 mm, while October is on average the wettest month with average rainfall of 56.2 mm. Mean annual maximum temperature is 19.8°C with a range of 13.8°C in July to 25.8°C in January, while the annual mean minimum temperature recorded at the Site is 9.4°C with a range of 5.1°C in July to 14.3°C in February (BOM 2024). |

| Setting                                   | Description   |
|---|---|
| <p><b>Topography &amp; Bathymetry</b></p> | <p>RAAF Williams (Laverton) ranges in elevation between 8 and 20 m Australian Height Datum (AHD) with a gentle slope to the southeast, in the direction of the coastline (Port Phillip Bay). This general slope to the southeast is reflective of the regional topography and topography of the MA. A mound occurs in the northwest of Site that is partially constructed of fill material. The Site is also cut by Laverton Creek and Doherty’s Drain, which run across the north and northeastern corner of the Site. This topography significantly influences the hydrology and hydrogeology of the Site, where both surface water and groundwater flow in a southeasterly direction towards Skeleton Creek and then to Port Phillip Bay.</p>  |
| <p><b>Geology</b></p>                     | <p>The Site is predominately underlain by the Quaternary-Tertiary Newer Volcanics. The Newer Volcanics formation consists of olivine basalt and olivine labradorite basalt, and is light to dark grey in colour, coarsely vesicular in places, and can include minor interbedded silty sand and baked soil.</p> <p>Surface geology comprises predominantly volcanic rocks assigned to the Pliocene-Pleistocene Newer Volcanics and localised deposits of recent alluvium along drainages.</p> <p>The geological sequences comprise an upper layer of fill (poorly sorted clay / sand / gravels) overlying residual basaltic soils and clays which are typically high plasticity brown clays, sometimes with minor calcareous gravels. The residual clays are typically in the range of 0.5 to 1.5 m thick and overlie basalts of the Tertiary age Newer Volcanics Group. The upper basalt varies in thickness and weathering profile across the Site, generally from 2 to 8 m thick, and is typically dry at shallower intervals. Across the Site, the upper basaltic unit is underlain by a red/brown baked clay palaeosol of varying thickness, which is typically soft and moist to wet.</p> <p>The layer of lower permeability clay is likely to limit vertical groundwater migration from the shallow aquifer into the deeper aquifer. Another layer of basalt is present beneath the baked clay paleosol, which is considered to represent an older flow sequence of the same Newer Volcanic Group.</p>   |
| <p><b>Acid Sulphate Soil</b></p>          | <p>A review of the Acid Sulphate Soils (ASS) risk mapping, available on the Australian Soil Resources Information System (ASRIS) atlas online database<sup>2</sup> indicates that the area encompassing the Site is classified as having an extremely low probability of encountering ASS on land, however there is a risk of encountering ASS in the wetlands soil (close to the main water bodies).</p>   |
| <p><b>Hydrology</b></p>                   | <p>RAAF Williams (Laverton) is located within the Werribee River basin, which covers an area of 1,991 km<sup>2</sup>, including much of the western area of Melbourne. Groundwater within RAAF Williams (Laverton) is part of the Port Phillip and Westernport Catchment Management Authority (CMA) Groundwater Flow System, which flows approximately 800m south of the RAAF Williams (Laverton) Site to Skeleton Creek and ultimately to Port Phillip Bay.</p> <p>The Site comprises of the following principal drainage catchments (i.e. Monitoring Area Drainage)</p> <ul style="list-style-type: none"> <li>▪ <b>Doherty’s Drain and Laverton Creek:</b> These are two main surface water drainage lines cross the northern half of the Site. Originating below ground in the northwestern corner of the Site, Doherty’s drain flows from west to east across the property connecting the three dams via concrete lined drains and underground pipes (under roadways) prior to merging with Laverton Creek.</li> </ul> <p>Laverton Creek is a permanent watercourse originating in the northeast and flows south to confluence with the Doherty’s Drain in the eastern portion of the Site. Laverton Creek is considered a generally gaining surface water system with a high potential for groundwater interaction (Aurecon 2022a).</p> <ul style="list-style-type: none"> <li>▪ <b>Skeleton Creek:</b> Originating near the Western Freeway (Truganina) passing through Hoppers Crossing, Seabrook and Point Cook before discharging to Port Phillip Bay via the Cheetham Wetlands. Skeleton Creek is another highly modified surface water body that receives stormwater from urban areas passing approximately 800 m south of the Site.</li> <li>▪ <b>Cheetham Wetlands/Port Philip Bay:</b> Point Cook/Cheetham (Cheetham Wetlands), which is located approximately 4 km southeast of RAAF Williams (Laverton) where Skeleton Creek and Laverton Creek discharge into.</li> <li>▪ <b>Laverton RAAF Swamp:</b> A larger natural wetland (Laverton RAAF Swamp) within a nature conservation area in the southwest corner of the former Base extents, which receives surface water from the Ashcroft Wetland and Forsyth Road Drain.</li> <li>▪ <b>Sanctuary Lakes:</b> Sanctuary Lakes is located 4 kms downstream of the Site. It is connected hydraulically by an intermittent pumped connection from the Skeleton Creek Tidal Pond and is considered as the Site’s drainage catchment.</li> </ul> <p>As outlined in the HHRA (EnRiskS, 2022) the lake is a 60-hectare man-made water body, which receives water from two sources to maintain salinities above 10,000 mg/L, water circulation and maintenance of a constant water level: stormwater flows directly into the lake from the upstream catchment areas in Point Cook and pumping of extra sea water from the incoming tide in the Skeleton Creek estuary. Due to these actions, it is inferred that site-derived PFAS concentrations (and PFAS from other sources to Skeleton Creek) may be incidentally pumped in the lake as a result, but any site-derived PFAS impacts measured at the lake may</p> |

| Setting  | Description   |
|--|---|
|  | <p>be relatively more diluted compared to that reported along Skeleton Creek and those from within Cheetham Wetlands (due to natural and artificial water circulation).</p> <p>The initial discharge location is in the western section of the lake at the Point Cook Road culvert and extends to Cheetham Creek. The draft Sanctuary Lakes Management Plan refers to pumps as operating continuously at 185 L/s for four-week periods from April 1, July 1 and September 1 such that, when operating, the daily pumped volume is approximately 16 ML/d (EnRiskS, 2022).</p>  |
| <p><b>Hydrogeology</b></p>   | <p>The hydrogeology of the Site consists of fractured basalt, separated by clay layers and lies within the Newer Volcanics Aquifer (NVA).</p> <ul style="list-style-type: none"> <li>▪ <b>Groundwater Occurrence/Quality-</b> The Site consists of the following multi-layered aquifer system comprising of the following: <ul style="list-style-type: none"> <li>– Defined by the presence of two basalt aquifers separated by an intervening clay aquitard. The upper basalt is generally unconfined whilst the lower basalt aquifer is semi-confined to confined.</li> <li>– Thickness of upper basalt aquifer is between 2.7 m and 13.7m. The total thickness of the lower basalt aquifer was 12 m in the north of the Site.</li> <li>– According to the Visualising Victoria’s Groundwater (VVG)<sup>3</sup> website, the groundwater salinity at and near the Site is classified at a Segment C level of salinity (3,101 to 5,400 mg/L Total Dissolved Solids (TDS)).</li> </ul> </li> <li>▪ <b>Depth to groundwater</b> for On-Site wells averaged 5.1 metres below ground level (mBGL), whilst average groundwater depths for Off-Site wells downgradient of the Site and former Base extent (Williams Landing) were 4.2 mBGL (reducing towards Skeleton Creek) and 5.6 mBGL, respectively.</li> <li>▪ <b>Groundwater Flow Direction</b> – Groundwater flow underlying the Site occurs horizontally in a general southerly to southeasterly direction discharges into Skeleton Creek, which acts as a barrier to further southerly flows in the upper NVA. Regionally, ultimate discharge from the NVA occurs predominantly into Port Phillip Bay, where the NVA extends to adjacent wetlands (such as Cheetham Wetlands) and offshore.</li> <li>▪ <b>Groundwater Use</b> – a bore search identified 93 registered bores within three kilometres of the Site boundaries. Groundwater use within the surrounding area (1 km around the Site) was found to be minimal, primarily owing to the presence of reticulated mains potable water supply. One active bore water user was identified south of the Laverton RAAF Swamp, where groundwater is used for the flood irrigation of the front lawn of the commercial / industrial property, and two observation groundwater bores were also noted within 1 km radius of the Site. Eight unknown or miscellaneous bores were identified within 1 km radius of the Site but are all located upgradient of Site, and also have a status of not monitored or monitoring ceased. No other groundwater users were identified from investigation into registered bores and a review or recent aerial imagery (Aurecon, 2020). It is noted that groundwater may be being used in the area by users with unregistered bores. <ul style="list-style-type: none"> <li>– 38 Observation or groundwater investigation wells.</li> <li>– 5 stock/domestic wells.</li> <li>– 22 destroyed or decommissioned wells.</li> <li>– 24 unknown use or miscellaneous wells, all of which are noted as not monitored or monitoring ceased.</li> </ul> </li> <li>▪ <b>Receiving Surface Water Body</b> – Groundwater underlying the Site flows in a general southerly to south-easterly direction and discharges to Skeleton Creek (~800m south of Site), which acts as a barrier to further southerly flows in the upper NVA. Therefore, direct migration of groundwater from the Site to Port Phillip Bay is unlikely. Regionally, ultimate discharge from the NVA occurs predominantly into Port Phillip Bay (~4km southeast of Site), where the NVA extends to adjacent wetlands (such as Cheetham Wetlands) and offshore.</li> </ul> |
| <p><b>Environmental Sensitive Areas</b></p>  | <p>The sensitive receptors to the area include (but are not limited to):</p> <ul style="list-style-type: none"> <li>▪ Aquatic biota of Skeleton Creek</li> <li>▪ Laverton RAAF Swamp</li> <li>▪ Cheetham Wetlands</li> <li>▪ Sanctuary Lakes</li> <li>▪ Aquatic flora, fish and crustaceans</li> <li>▪ Higher order predators (migratory birds)</li> </ul>  |
| <p>1. Bureau of Meteorology <a href="http://www.bom.gov.au/climate/averages/tables/cw_086361.shtml">http://www.bom.gov.au/climate/averages/tables/cw_086361.shtml</a>, last accessed in January 2024.</p> <p>2. Australian Soil Resource Information System <a href="http://www.asris.csiro.au/mapping/viewer.htm">http://www.asris.csiro.au/mapping/viewer.htm</a>, last accessed in January 2024.</p> <p>3. Visualising Victoria’s Groundwater <a href="https://www.vvg.org.au/vvg_map.php?agreement=Agree+and+Continue#">https://www.vvg.org.au/vvg_map.php?agreement=Agree+and+Continue#</a>, last accessed in January 2024.</p> |   |

### 2.1.3 Rainfall

Monthly mean rainfall for 2022 and 2023 and the average monthly rainfall are presented in Figure 2-1 below. Rainfall was significantly lower in the months of January and February 2023 preceding the E1 event in March 2023.

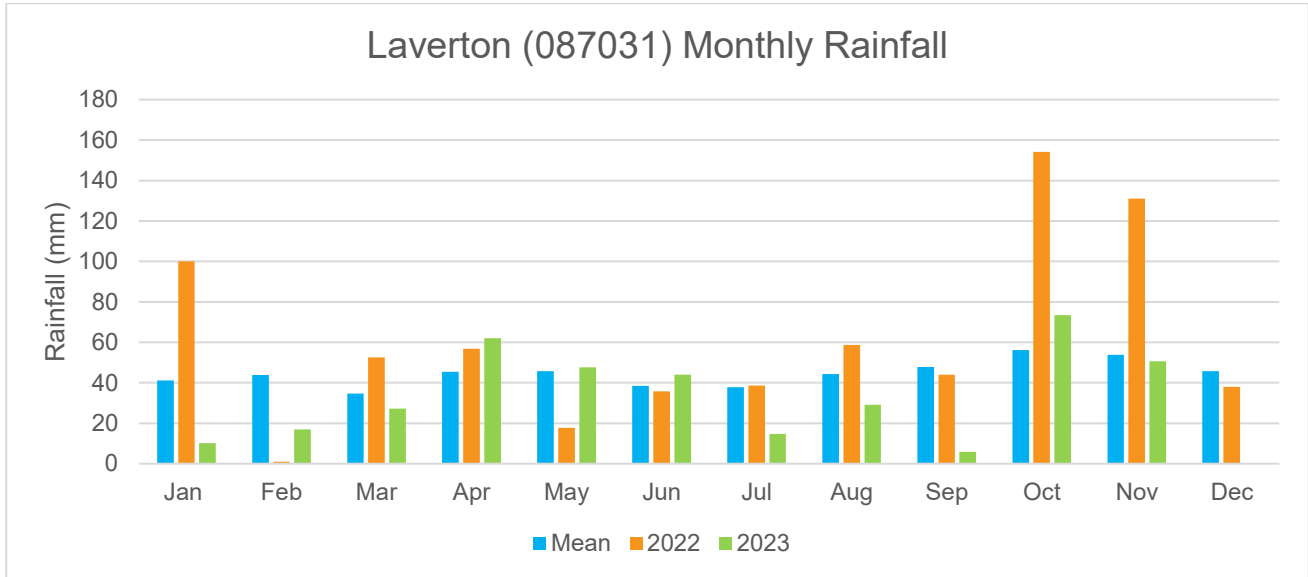


Figure 2-1 Total monthly rainfall data (Station 087031) (BoM, 2023).

## 2.2 Management Area

The ongoing monitoring program includes sampling and analysis not only from the Site, but also from Off-Site locations situated on public land. The Site and these surrounding areas which collectively encompasses the network of OMP monitoring locations, is referred to as the “Management Area”, as defined in Section 1.

The OMP includes all groundwater and surface water monitoring locations on the Site and public land to the west (former Base extents), southwest and south of the Site, and waterbodies and adjacent land situated hydraulically downgradient of the Site, including Skeleton Creek and Sanctuary Lakes, which are collectively referred to as the MA.

The MA boundaries are presented on Figure 1, Appendix A.

## 2.3 Source Areas

Based on the findings of the DSI (Aurecon, 2022) several Source Areas where PFAS has been detected in soil or groundwater at concentrations exceeding the adopted assessment levels were identified. These are shown in Figure 2, Appendix A, and include the following:

- > CSR\_VIC\_000168 Source Area 1 (SA1) – Former Wet Testing Area (extends east onto residential land of Williams Landing.).
- > CSR\_VIC\_000489 Source Area 2 (SA2) – Western Finger Area (extends partially north onto residential land of Williams Landing)
  - Air Movements
  - Fire Truck Maintenance Shed (Building 123)
  - Former Chemical Storage (Buildings 81 and 155)
  - Electroplating Areas (Building 7)
  - Former Electrical Workshop (Former Building 88).
- > CSR\_VIC\_000488 Source Area 3 (SA3) – Former Secondary Fire Training Area
  - Former fire training area

- Historical landfill / dumping sites.
- > CSR\_VIC\_000487 Source Area 4 (SA4) – Former GEMS Compound (now Off-Site at the location of a current commercial/industrial business and extends partially On-Site to the north and east).



## 2.4 OMP Monitoring Locations

The network of On-Site and Off-Site surface water and groundwater locations sampled as part of the OMP (Aurecon, 2022a) is summarised in Table 2-3 and shown in Figures 3, 4A and 4B, Appendix A.

### 2.4.1 Surface Water Monitoring Locations

Table 2-3 Surface Water OMP Monitoring Network

| Catchment/Waterway               | Target Area                   | Total Number of Monitoring Locations | Monitoring Locations   | Justification  |
|----------------------------------|-------------------------------|--------------------------------------|--|--|
| <b>On-Site Locations</b>         |                               |                                      |  |  |
| Engineered drainage system       | Former Wet Testing Area (SA1) | 1                                    | SW034  | Locations target surface water and sediment within and downgradient of the source area.  |
|                                  | Western Finger (SA2)          | 1                                    | SW043  | Locations target surface water and sediment at discharge from Site.  |
| Doherty's Drain / Laverton Creek | Former Secondary FTA (SA3)    | 3                                    | SW005, SW006, SW008  | Locations target surface water upgradient, within and downgradient of the source area.   |
| <b>Off-Site Locations</b>        |                               |                                      |  |  |
| Laverton Creek                   | Former Secondary FTA (SA3)    | 1                                    | SW015  | Location targets surface water downgradient of the source area in an accessible location near the point of migration Off-Site. |
| Skeleton Creek                   | Former Wet Testing Area (SA1) | 3                                    | SW012, SW013, SW020  | Locations target surface water downgradient of the source area near the point of discharge to Skeleton Creek.                  |
|                                  | Western Finger (SA2)          | 4                                    | SW024, SW049, SW073, SW078   | Locations target surface water downgradient of the source area near the point of discharge to Skeleton Creek.                  |
|                                  | Former GEMS Compound, (SA4)   | 1                                    | SW041  | Location targets surface water up stream of the of the former Site. Background monitoring point                                |
| Laverton RAAF Swamp              | Secondary Off-Site sources    | 10                                   | (SW035, SW036, SW037, SW038, SW039, SW083)* SW027, SW030, SW042, SW045 | Locations target groundwater upgradient, within and downgradient of the source area.   |

| Catchment/Waterway   | Target Area                | Total Number of Monitoring Locations | Monitoring Locations              | Justification  |
|--|----------------------------|--------------------------------------|-----------------------------------|--|
| Sanctuary Lakes  | Secondary Off-Site sources | 5                                    | SW052, SW085, SW086, SW087, SW088 | Locations target groundwater upgradient, within and downgradient of the source area. |
| *Surface water locations SW035 through SW039 and SW083 are not part of the OMP but were added to the scope for E2 and included in the SAQP. However, access was not granted by the property owner, so these locations were unable to be sampled. |                            |                                      |                                   |  |

### 2.4.2 Groundwater Monitoring Locations

Table 2-4 Groundwater OMP Monitoring Network

| Catchment/Waterway             | Target Area                   | Total Number of Monitoring Locations | Monitoring Locations  | Justification  |
|--------------------------------|-------------------------------|--------------------------------------|---|--|
| <b>On-Site Locations</b>       |                               |                                      |   |  |
| Doherty's drain/Laverton Creek | Former Secondary FTA, (SA3)   | 4                                    | MW115, MW144, MW146, MW217  | Locations target groundwater upgradient, within and downgradient of the source area.       |
| Skeleton Creek                 | Former Wet Testing Area (SA1) | 6                                    | MW117, MW118<br>MW163, MW207<br>MW208, MW211                          | Locations target groundwater upgradient, within and downgradient of the source area.       |
|                                | Former Wet Testing Area (SA1) | 3                                    | MW105, MW107, MW109   | Locations monitor changes in groundwater concentration at the point of migration off Site. |
|                                | Western Finger (SA2)          | 9                                    | MW102, MW103<br>MW120, MW152<br>MW155, MW182<br>MW185, MW192<br>MW200 | Locations target groundwater upgradient, within and downgradient of the source area.       |
|                                | Former GEMS Compound, (SA4)   | 4                                    | MW110, MW138<br>MW139, MW140  | Locations target groundwater upgradient, within and downgradient of the source area.       |
| <b>Off-Site Locations</b>      |                               |                                      |   |  |
| Skeleton Creek                 | Former Wet Testing Area       | 1                                    | MW228   | Location targets groundwater downgradient of the source area Off-Site.                     |

| Catchment/Waterway  | Target Area   | Total Number of Monitoring Locations | Monitoring Locations        | Justification   |
|---------------------|---|--------------------------------------|-----------------------------|---|
|                     | (SA1)   |                                      |                             |   |
|                     | Western Finger (SA2)  | 4                                    | MW121, MW123, MW124, MW126  | Locations target groundwater downgradient of the source area near the point of discharge to Skeleton Creek. |
|                     | Former GEMS Compound, (SA4)   | 1                                    | MW229                       | Locations target groundwater downgradient of the source area.   |
| Laverton RAAF Swamp | Secondary Off-Site sources (Williams Landing and Former Primary Fire Training Area) | 4                                    | MW129*, MW130, MW131, MW137 | Locations target groundwater upgradient, within and downgradient of the source area.                        |

\*Well is a gauge only location in the OMP (Aurecon, 2022a), but was added to SAQP to be sampled in July 2023 as agreed with Defence, however, was found to be destroyed and unable to be sampled.

### 3 Sampling and Analytical Methodology

#### 3.1 Sampling and Analysis Methodology

The sampling and analysis methodology is outlined in the SAQP, presented in Appendix E. Deviations from SAQP requirements are detailed below.

#### 3.2 Deviations from OMP SAQP

Deviations from the SAQP are summarised in Table 3.1.

Table 3-1 Deviations from the SAQP

| Location           | Sampling Event | Deviation  | Comments                          | Impact on Existing Dataset & Program   |
|--------------------|----------------|------------|-----------------------------------|--|
| <b>Groundwater</b> |                |            |                                   |  |
| MW101              | E1/E2          | Not Gauged | Unable to open rusted gatic cover | Low Impact - well is gauged only, so only data impact is missing gauging data in this area |

| Location             | Sampling Event | Deviation             | Comments   | Impact on Existing Dataset & Program  |
|----------------------|----------------|-----------------------|--|---|
| MW104                | E1/E2          | Not Gauged            | Unable to open rusted gatic cover  | Low Impact - well is gauged only, so only data impact is missing gauging data in this area  |
| MW119                | E1/E2          | Not Gauged            | Unable to open, damaged bolts on the gatic lid.  | Low Impact - well is gauged only, so only data impact is missing gauging data in this area  |
| MW122                | E1/E2          | Not Gauged            | Well not located and may be destroyed as it appears to have been covered by concrete.                          | Low Impact - well is gauged only, so only data impact is missing gauging data in this area  |
| MW127                | E1/E2          | Not Gauged            | Well not located and may be destroyed as it appears to have been buried.                                       | Low Impact - well is gauged only, so only data impact is missing gauging data in this area  |
| MW129                | E2             | Not Gauged or Sampled | Well not located, it appears to have been buried during nature strip development works. Potentially destroyed. | Medium Impact – potential data gap for monitoring groundwater downgradient of location MW131 and flowing towards wetland area and Skeleton Creek in the south. Location was previously sampled during the Detailed Site Investigation (DSI) in 2018.  |
| MW194                | E2             | Not Gauged            | Unable to access well due to temporary material stored on top of the well.                                     | Low Impact - well is gauge only. The well was gauged during the first OMP event (E1) in March 2023.   |
| MW230                | E1/E2          | Not Gauged            | Well not located and may be destroyed as it appears to have been buried, new developed park                    | Low Impact - well is gauged only, so only data impact is missing gauging data in this area  |
| <b>Surface Water</b> |                |                       |  |   |
| SW005                | E1             | Not Sampled           | Location dry   | Monitoring from E1 and E2 indicates this location is ephemeral and likely to be generally dry, except following sufficient rainfall. Location was previously sampled during Detailed Site Investigation (DSI) in 2018 and reported results below adopted criteria. Location was also sampled during E2.   |
| SW008                | E1/E2          | Not Sampled           | Location dry   | Monitoring from E1 and E2 indicates this location is ephemeral and likely to be generally dry, except following sufficient rainfall. Location was previously sampled during DSI in 2018 and reported results below adopted criteria. As SW008 was dry during both events, no recent data regarding PFAS concentrations in surface water at this location since 2018 is known, which presents a data gap regarding potential changes in contribution of PFAS to site from Off-Site sources |
| SW035                | E2             | Not Sampled           | Unable to access property as access was not granted by landowner   | Low Impact – These locations are not part of OMP but were added to the scope for E2 to assess where groundwater could potentially be discharging in response to the   |

| Location | Sampling Event | Deviation  | Comments   | Impact on Existing Dataset & Program  |
|----------|----------------|--|--|---|
| SW036    | E2             | Not Sampled  | Unable to access property as access was not granted by landowner | increasing concentrations at MW131. Based on further review of the Environmental Risk Assessment (ERA; Aurecon, 2022c), Laverton RAAF Swamp is not believed to be connected to regional groundwater, and therefore groundwater impacts at MW131 are unlikely to increase surface water concentrations in Laverton RAAF Swamp. Locations were previously sampled during DSI and ERA in 2019 and 2020.  |
| SW037    | E2             | Not Sampled  | Unable to access property as access was not granted by landowner |   |
| SW038    | E2             | Not Sampled  | Unable to access property as access was not granted by landowner |   |
| SW039    | E2             | Not Sampled  | Unable to access property as access was not granted by landowner |   |
| SW083    | E2             | Not Sampled  | Unable to access property as access was not granted by landowner |   |
| SW042    | E1             | Not Sampled  | Location dry   | Monitoring from E1 and E2 indicates this location is ephemeral and likely to be generally dry, except following sufficient rainfall. Location was previously sampled during DSI in 2018 and reported results above LOR. SW073 located downstream from this location was sampled during E1, so data from that drainage is available. Location was sampled during E2.   |
| SW042    | E2             | Sampled in standalone event following completion of E2 OMP event | Location was dry at the time of the E2 event                     | Location was dry during E2 sampling event, and supports the observations from E1 that this location is ephemeral and likely to be generally dry, except following sufficient rainfall. Location was sampled on 17 <sup>th</sup> October 2023 as agreed with Defence after rainfall event.<br><br>This is considered to have no impact on the dataset as the location was sampled in the second visit and the concentrations were consistent with previous historical results. |
| SW043    | E1             | Not Sampled  | Location dry   | Monitoring from E1 and E2 indicates this location is ephemeral and likely to be generally dry, except following sufficient rainfall. Location was previously sampled during DSI in 2018 and reported results above LOR. Location was also sampled during E2.  |

## 4 Quality Assurance and Quality Control

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### 4.1 Data Validation Process

A critical aspect of site assessments is the demonstration of the quality of the data used as the basis for the assessment. This is achieved through a Data Validation process which includes a review of the following data quality indicators, as described in the SAQP, presented in Appendix E:

- > Quality Assurance (QA) documentation.
- > Bias.
- > Data Representativeness.
- > Data Precision & Accuracy.
- > Laboratory Performance.
- > Data Comparability.
- > Data Set Completeness.

### 4.2 QA/QC Summary

The primary laboratory has undertaken different Quality Control (QC) measures in all sets of sample analysis which validate the precision and accuracy of their techniques. The laboratories are appropriately certified by the National Association of Testing Authorities (NATA) for environmental sample analysis. It is considered that the analytical results are accurate and reliable for the purposes of this assessment.

Field quality assurance and quality control (QA/QC) was recorded on field sheets, and laboratory QA/QC were reported with sample results and reviewed in the Factual Report Data Quality Reviews. Standard sampling methods, handling, preservation and transport procedures were complied with as detailed in Section 1 and in the SAQP. Quality control samples comprising blind replicate (duplicate or intra-laboratory sample), triplicate (inter-laboratory sample), rinsate blanks and trip blanks were collected during each field event, in accordance with the frequency outlined in the SAQP. Standard procedures and qualified personnel were used for each sampling event.

Field Chain of Custody forms are included in the Factual Reports and demonstrate sample integrity. The data collected is considered comparable for each sampling event and can be used for the assessment.

The data validation process (refer to the factual reports in Appendix C and Appendix D) has concluded that there are no significant systematic errors in the data collection process or laboratory QC testing. Therefore, the data set used as the basis for this assessment is considered valid and complete.

## 5 Assessment Criteria

### 5.1 Groundwater and Surface Water

The assessment levels adopted for groundwater and surface water are based upon the PFAS screening criteria specified in the OMP (Aurecon, 2022a) and SAQP (Cardno, 2023), which were adopted based on the guidance in the PFAS NEMP (HEPA, 2020). The adopted assessment criteria for groundwater and surface water are detailed in Table 5-1. The surface water and groundwater are not suitable for drinking water and a screening criterion in relation to drinking water is not considered appropriate.

Table 5-1 PFAS Criteria for Groundwater and Surface Water

| Exposure Scenario  | Adopted Assessment Criteria |      |      | Guidance               |
|--|-----------------------------|------|------|------------------------|
|  | PFOS + PFHxS                | PFOA | PFOS |                        |
|  | µg/L                        |      |      |                        |
| Recreational water quality guideline   | 2                           | 10   | -    | PFAS NEMP (HEPA, 2020) |
| Interim marine water (95% species protection – slightly to moderately disturbed systems) | -                           | 220  | 0.13 | PFAS NEMP (HEPA, 2020) |
| Notes:   |                             |      |      |                        |
| 1. The LORs used for the investigation is 0.01 µg/L for PFOS, PFOA and PFHxS.            |                             |      |      |                        |

## 6 Contextual and Ancillary Information

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There were no known activities occurring On-Site or Off-Site with the potential to impact on the monitoring network or results obtained during the monitoring period.

Defence is currently planning to install additional groundwater monitoring wells to replace destroyed well MW129, and new wells to the south of Laverton RAAF Swamp. The wells will be installed to provide further data to inform the understanding of the existing groundwater plume within the western portion of Williams Landing near the Former Primary Fire Training Area source area. These wells are planned to be installed in the first half of 2024 and will form part of the OMP monitoring network after installation.

In early 2024 Defence has appointed a Lead Consultant (LC) for PMAP Implementation. The LC will undertake the following PMAP response actions:

- > Action 1: Undertake a PFAS Mass Flux Study. The mass flux study will be undertaken to understand the ongoing contribution of PFAS from the Site and source areas to the environment via migration of PFAS from residual soil mass to water via surface water drainage and groundwater.
- > Action 4: Detailed Ecological Risk Assessment (ERA). The ERA will be undertaken to further characterise the risk and refine the CSM to inform risk-based remediation or management strategies.

Action 2, to install precautionary signage along Skeleton Creek and provide community notifications, has been completed, and Action 3, to implement the OMP, commenced in 2023 and the first monitoring period has been completed with the findings presented in this report.

In the future, it is anticipated that the implementation of the remaining PMAP response actions, the mass flux study and detailed ERA, will provide additional contextual information that will support the OMP, including refinement of the CSM.



## 7 Monitoring Data Summary

### 7.1 Groundwater

#### 7.1.1 Groundwater Physicochemical Field Parameters

The groundwater quality field parameters recorded during E1 and E2 monitoring events are summarised in Table 7-1 below.

Table 7-1 Groundwater Physicochemical Field Parameters

| Event    | pH   | DO (mg/L)  | EC (µS/cm)                     | TDS <sup>1</sup> (mg/L)                                       | Corrected ORP (mV)  |
|----------|--|--|--------------------------------|---|---|
| On-Site  | March 2023 (E1)<br>6.92 (MW107) – 9.05 (MW185)<br><i>Neutral to slightly alkaline conditions</i> | 0.71 (MW163) – 4.34 (MW102)<br><i>Anerobic to Aerobic conditions</i> | 971 (MW109) – 10,312 (MW211)   | 631 (MW109) – 6,703 (MW211)<br><i>Fresh to brackish water</i> | 102.5 (MW105) – 352.1 (MW217)<br><i>Slightly reducing to oxidising conditions</i> |
|          |  | 0.41 (MW109) – 4.31 (MW208)<br><i>Anerobic to Aerobic conditions</i> | 674 (MW152) – 8,536 (MW140)    | 438 (MW152) – 5,548 (MW140)<br><i>Fresh to brackish water</i> | 73.7 (MW163) – 321.0 (MW115)<br><i>Reducing to oxidising conditions</i>           |
| Off-Site | March 2023 (E1)<br>6.99 (MW124) – 7.79 (MW130)<br><i>Neutral conditions</i>                      | 0.55 (MW131) – 3.85 (MW123)<br><i>Anerobic to Aerobic conditions</i> | 1,016 (MW124) – 15,204 (MW130) | 660 (MW124) – 9,883 (MW130)<br><i>Fresh to brackish water</i> | 254.8 (MW137) – 304.6 (MW130)<br><i>Slightly reducing to oxidising conditions</i> |
|          |  | 0.63 (MW131) – 5.57 (MW123)<br><i>Anerobic to Aerobic conditions</i> | 1,056 (MW124) – 13,228 (MW131) | 686 (MW124) – 8,598 (MW131)<br><i>Fresh to brackish water</i> | 131.4 (MW131) – 357.1 (MW228)<br><i>Reducing to oxidising conditions</i>          |

<sup>1</sup> EC in µS/cm converted to TDS in mg/L by multiplying by 0.65.

Groundwater quality field parameters recorded during the groundwater sampling program are presented in Table B1, Appendix B.

In summary, the field parameter results indicate the following:

- > On-Site: Dissolved oxygen (DO) and pH were generally consistent between events On-Site. Corrected oxidation-reduction potential (ORP), electrical conductivity (EC), total dissolved solids (TDS), were slightly higher during E1.
- > Off-Site: pH was generally consistent between events. ORP reported greater variation in E2. EC and TDS were slightly higher during E1, while DO was generally higher during E2.
- > pH was higher at On-Site locations during both sampling events, while EC and TDS were lower at On-Site locations during both sampling events.

The following notable field observations were identified during groundwater gauging and sampling:

- > A potential sulfuric odour was noted in well MW105 during E1 and MW140 during E2.
- > A potential hydrocarbon odour was noted in well MW152 during E1.

MW105 reported higher PFAS concentrations during E1, but the potential sulfuric odour is not anticipated to be connected to this increase, as concentrations remained higher than historical during E2 but no odour was noted. No apparent changes in PFAS concentrations were reported at the other wells during these events.

### 7.1.2 Groundwater Elevation and Flow Directions

Groundwater flow was interpreted to be in a south to southeasterly direction towards Skeleton Creek and was generally consistent between events and with that reported during the DSI (Aurecon, 2020). Contour plans are included in Figures 5A and 5B, Appendix A. Gauging records are presented in Table B1, Appendix B. A summary of the groundwater elevation range encountered during each monitoring event is presented in Table 7-2.

Table 7-2 Groundwater Elevation Range Summary

| Event                 | Groundwater Elevation Range (mAHD) | Groundwater Depth Range (mTOC) |
|-----------------------|------------------------------------|--------------------------------|
| E1 (March 2023)       | 3.442 (MW123) – 12.904 (MW135)     | 1.097 (MW121) – 9.489 (MW115)  |
| E2 (July/August 2023) | 3.301 (MW123) – 12.980 (MW203)     | 1.082 (MW121) – 9.448 (MW115)  |

Groundwater elevations across the MA appeared to be relatively stable between monitoring events.

### 7.1.3 Laboratory Results

Groundwater sampling locations have been indicatively grouped with respect to major PFAS source areas and flow paths across the Site:

- > SA1 – Former Wet Testing Area
- > SA2 – Western Finger
- > SA3 – Former Secondary Fire Training Area
- > SA4 – Former GEMS Compound
- > Secondary Off-Site Sources (Williams Landing and Former Primary Fire Training Area)

For each area, Table 7-3 through Table 7-7 present the PFOS+PFHxS, PFOS and PFOA results from the ongoing monitoring program and the range of concentrations from historical results. PFAS concentration changes are highlighted where first-time detections, new exceedances of adopted assessment criteria, new maximums or new minimums are observed.

Laboratory analytical results were compared to the adopted assessment criteria, and are presented in Table B3, Appendix B. The PFOS+PFHxS concentrations in groundwater from historical to 2023 are mapped in Figures 6A-6C, Appendix A.

Laboratory certificates of analysis and chain of custody (COC) documentation are included in the Factual Reports, presented in Appendix C and Appendix D.

#### 7.1.3.1 Former Wet Testing Area (SA1)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at groundwater monitoring locations targeting the Former Wet Testing Area (SA1) for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-3 below.

Table 7-3 Former Wet Testing Area - Groundwater PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring  |                       |
|-------------|------------|--------------------------------|-----------------|-----------------------|
|             |            |                                | E1 (March 2023) | E2 (July/August 2023) |
| MW105       | PFOS+PFHxS | 63                             | 183             | 134                   |
|             | PFOS       | 41                             | 69.8            | 51.7                  |
|             | PFOA       | 1.2                            | 4.04            | 3.2                   |
| MW107       | PFOS+PFHxS | 4.25                           | 4.78            | 5.55                  |
|             | PFOS       | 0.25                           | 0.42            | 0.43                  |
|             | PFOA       | 0.14                           | 0.17            | 0.17                  |

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring  |                       |
|-------------|------------|--------------------------------|-----------------|-----------------------|
|             |            |                                | E1 (March 2023) | E2 (July/August 2023) |
| MW109       | PFOS+PFHxS | 0.3-0.33                       | 0.81            | 0.88                  |
|             | PFOS       | 0.17-0.18                      | 0.41            | 0.47                  |
|             | PFOA       | <0.01                          | 0.01            | 0.02                  |
| MW117       | PFOS+PFHxS | 78                             | 66.4            | 42.8                  |
|             | PFOS       | 19                             | 12.1            | 13.4                  |
|             | PFOA       | 2.1                            | 1.53            | 0.89                  |
| MW118       | PFOS+PFHxS | 35*                            | 51.9            | 58.0                  |
|             | PFOS       | 21*                            | 21.1            | 28*                   |
|             | PFOA       | 0.6*                           | 1.43            | 1.30                  |
| MW163       | PFOS+PFHxS | 1,360 – 2,270                  | 821             | 801                   |
|             | PFOS       | 720 - 1,500                    | 552             | 523                   |
|             | PFOA       | 38 – 40                        | 18.1            | 18.8                  |
| MW207       | PFOS+PFHxS | 23.4                           | 21.3            | 20.6                  |
|             | PFOS       | 15                             | 11.3            | 12.0                  |
|             | PFOA       | 0.34                           | 0.50            | 0.40                  |
| MW208       | PFOS+PFHxS | 30-87                          | 290*            | 81.4                  |
|             | PFOS       | 16-72                          | 210*            | 61.8                  |
|             | PFOA       | 0.34-1                         | 5.3*            | 1.2*                  |
| MW211       | PFOS+PFHxS | 0.48                           | 0.75*           | 0.58*                 |
|             | PFOS       | 0.05                           | 0.14*           | 0.10                  |
|             | PFOA       | 0.01                           | 0.02            | 0.02*                 |
| MW228       | PFOS+PFHxS | 18.4                           | 4.36            | 9.66                  |
|             | PFOS       | 9.9                            | 2.35            | 4.75                  |
|             | PFOA       | 0.38                           | 0.08            | 0.21                  |
| New maximum |            | New minimum                    | New Exceedance  | First Time Detection  |

Notes:

- \* Duplicate/triplicate result adopted
- <0.01 Limit of Reporting

A review of Table 7-3 indicates:

- > PFOS+PFHxS concentrations in the Former Wet Testing Area ranged between 0.58 (MW211) and 821 µg/L (MW163). PFOA concentrations ranged between 0.01 (MW109) and 18.8 µg/L (MW163).
- > A first-time detection of PFOA was reported at the southern boundary of Site (MW109) during E1. New maximums of PFOS+PFHxS, PFOS and PFOA were recorded during the following E2 event.
- > A new exceedance of ecological criteria for PFOS was reported during E1 at MW211.
- > Wells MW105, MW208 and MW211 reported new maximums of PFOS+PFHxS, PFOS and PFOA during E1. Wells MW107, MW118 and MW207 also reported new maximums of PFOA during E1.
- > Wells MW107, MW109 and MW118 reported new maximums of PFOS+PFHxS, PFOS or PFOA during E2.
- > Wells MW117, MW163, MW207 and MW228 reported new minimums of PFOS+PFHxS, PFOS or PFOA during E1.
- > Wells MW117, MW163 and MW207 reported new minimums of PFOS+PFHxS, PFOS or PFOA during E2.

7.1.3.2 Western Finger (SA2)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at groundwater monitoring locations targeting the Western Finger (SA2) for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-4 below.

Table 7-4 Western Finger – Groundwater PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring  |                       |
|-------------|------------|--------------------------------|-----------------|-----------------------|
|             |            |                                | E1 (March 2023) | E2 (July/August 2023) |
| MW102       | PFOS+PFHxS | 17.5                           | 21.4*           | 18.2                  |
|             | PFOS       | 9.4                            | 12*             | 10.1                  |
|             | PFOA       | 0.36                           | 0.42*           | 0.39                  |
| MW103       | PFOS+PFHxS | 14                             | 14.7            | 21.7                  |
|             | PFOS       | 6.8                            | 5.91            | 9.46                  |
|             | PFOA       | 0.27                           | 0.28            | 0.47                  |
| MW120       | PFOS+PFHxS | 3.4                            | 11.2            | 8.47                  |
|             | PFOS       | 1.3                            | 5.17            | 4.56                  |
|             | PFOA       | 0.09                           | 0.31            | 0.21                  |
| MW121       | PFOS+PFHxS | 0.5                            | 0.81            | 0.90                  |
|             | PFOS       | 0.15                           | 0.35            | 0.40                  |
|             | PFOA       | 0.01                           | 0.02            | 0.02                  |
| MW123       | PFOS+PFHxS | 1.81                           | 2.78            | 2.90                  |
|             | PFOS       | 0.71                           | 1.60            | 1.63                  |
|             | PFOA       | 0.05                           | 0.05            | 0.06                  |
| MW124       | PFOS+PFHxS | 3.96                           | 1.59            | 2.69                  |
|             | PFOS       | 3.1                            | 1.11            | 2.10                  |
|             | PFOA       | 0.2                            | 0.07            | 0.19                  |
| MW126       | PFOS+PFHxS | 0.28                           | 0.21            | 0.26                  |
|             | PFOS       | 0.06                           | 0.04            | 0.03                  |
|             | PFOA       | 0.01                           | 0.03            | 0.02                  |
| MW152       | PFOS+PFHxS | 3.95 – 27.3                    | 19.0            | 9.77                  |
|             | PFOS       | 0.55-19                        | 8.53            | 4.84                  |
|             | PFOA       | 0.31-0.4                       | 0.40            | 0.20                  |
| MW155       | PFOS+PFHxS | 1.65-6.6                       | 3.70            | 1.98                  |
|             | PFOS       | 0.79-5.1                       | 2.65            | 1.36                  |
|             | PFOA       | 0.22-0.44                      | 0.24            | 0.14                  |
| MW182       | PFOS+PFHxS | 5.8                            | 3.68            | 2.82                  |
|             | PFOS       | 2.2                            | 1.10            | 0.79                  |
|             | PFOA       | 0.11                           | 0.07            | 0.05                  |
| MW185       | PFOS+PFHxS | 0.65 – 4                       | 2.79            | 2.62                  |
|             | PFOS       | 0.08-2.4                       | 1.62            | 1.60                  |
|             | PFOA       | 0.06-0.07                      | 0.05            | 0.04                  |
| MW192       | PFOS+PFHxS | 4.6 – 12.2                     | 4.46            | 2.81                  |
|             | PFOS       | 1.9 – 6.9                      | 2.66            | 1.91                  |

|       |             |             |                |                      |
|-------|-------------|-------------|----------------|----------------------|
|       | PFOA        | 0.13 – 0.21 | 0.09           | 0.04                 |
|       | PFOS+PFHxS  | 23.8        | 15.9*          | 12.1                 |
| MW200 | PFOS        | 18          | 11*            | 7.68                 |
|       | PFOA        | 0.41        | 0.28*          | 0.23                 |
|       | New maximum | New minimum | New Exceedance | First Time Detection |

Notes:

- \* Duplicate/triplicate result adopted

A review of Table 7-4 indicates:

- > PFOS+PFHxS concentrations in the western finger ranged between 0.21 (MW126) and 21.7 µg/L (MW103). PFOA concentrations ranged between 0.02 (MW121 and MW126) and 0.47 µg/L (MW103).
- > A new exceedance of recreational criteria for PFOS+PFHxS was reported at an Off-Site location (MW123), south of Site along Skeleton Creek during E1.
- > Wells MW124 and MW126 reported new minimums of PFOS+PFHxS, PFOS or PFOA during E1.
- > Wells MW102, MW120, MW121 and MW126 reported new maximums of PFOS+PFHxS, PFOS or PFOA during E1.
- > Wells MW126, MW152, MW155, MW182, MW185, MW192 and MW200 reported new minimums of PFOS+PFHxS, PFOS or PFOA during E2.
- > Wells MW103, MW121 and MW123 reported new maximums PFOS+PFHxS, PFOS or PFOA during E2.

### 7.1.3.3 Former Secondary Fire Training Area (SA3)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at groundwater monitoring locations targeting the Former Secondary Fire Training Area (SA3) for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-5 below.

Table 7-5 Former Secondary Fire Training Area – Groundwater PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte     | Historical Concentration Range | OMP Monitoring  |                       |
|-------------|-------------|--------------------------------|-----------------|-----------------------|
|             |             |                                | E1 (March 2023) | E2 (July/August 2023) |
| MW115       | PFOS+PFHxS  | 0.01                           | 0.03            | 0.01                  |
|             | PFOS        | <0.01                          | 0.02            | 0.01                  |
|             | PFOA        | <0.01                          | <0.01           | <0.01                 |
| MW144       | PFOS+PFHxS  | 2.3                            | 1.35            | 1.41                  |
|             | PFOS        | 1.5                            | 0.83            | 0.86                  |
|             | PFOA        | 0.03                           | 0.02            | 0.02                  |
| MW146       | PFOS+PFHxS  | 2.41                           | 1.45            | 1.49                  |
|             | PFOS        | 1.7                            | 0.97            | 1.00                  |
|             | PFOA        | 0.02                           | 0.02            | 0.02                  |
| MW217       | PFOS+PFHxS  | 0.24                           | 0.12            | 0.09                  |
|             | PFOS        | 0.05                           | 0.03            | 0.02                  |
|             | PFOA        | <0.01                          | <0.01           | <0.01                 |
|             | New maximum | New minimum                    | New Exceedance  | First Time Detection  |

Notes:

- <0.01 Limit of Reporting

A review of Table 7-5 indicates:

- > PFOS+PFHxS concentrations in the Former Secondary Fire Training Area ranged between 0.01 (MW115) and 1.49 µg/L (MW146). PFOA concentrations ranged from <0.01 (MW115 and MW217) and 0.02 µg/L (MW144 and MW146).
- > A first-time detection of PFOS was reported at the northern boundary of Site (MW115) during the E1 event and remained stable during E2.
- > Groundwater monitoring well MW115 reported a new maximum of PFOS+PFHxS during E1.
- > Wells MW144 and MW146 reported new minimums of PFOS+PFHxS, PFOS or PFOA during E1.
- > Groundwater monitoring well MW217 reported new minimums of PFOS+PFHxS and PFOS during E2.

7.1.3.4 Former GEMS Compound (SA4)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at groundwater monitoring locations targeting the Former GEMS Compound (SA4) for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-6 below.

Table 7-6 Former GEMS Compound – Groundwater PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring  |                       |  |                      |  |
|-------------|------------|--------------------------------|-----------------|-----------------------|--|----------------------|--|
|             |            |                                | E1 (March 2023) | E2 (July/August 2023) |  |                      |  |
| MW110       | PFOS+PFHxS | 76-134                         | 94.7            | 95.8                  |  |                      |  |
|             | PFOS       | 40-56                          | 59.1            | 62.0                  |  |                      |  |
|             | PFOA       | 1.6-2.3                        | 1.37            | 1.28                  |  |                      |  |
| MW138       | PFOS+PFHxS | 9.74                           | 8.89            | 18.0                  |  |                      |  |
|             | PFOS       | 5.22                           | 3.65            | 9.86                  |  |                      |  |
|             | PFOA       | 0.18                           | 0.16            | 0.32                  |  |                      |  |
| MW139       | PFOS+PFHxS | 87                             | 22.3            | 40.2                  |  |                      |  |
|             | PFOS       | 44                             | 6.33            | 10.5                  |  |                      |  |
|             | PFOA       | 1.8                            | 0.47            | 0.90                  |  |                      |  |
| MW140       | PFOS+PFHxS | 1.19                           | 0.96            | 1.28                  |  |                      |  |
|             | PFOS       | 0.44                           | 0.44            | 0.73                  |  |                      |  |
|             | PFOA       | 0.02                           | 0.02            | 0.02                  |  |                      |  |
| MW229       | PFOS+PFHxS | 2.23                           | 1.83            | 2.05                  |  |                      |  |
|             | PFOS       | 1.4                            | 0.90            | 1.10                  |  |                      |  |
|             | PFOA       | 0.04                           | 0.03            | 0.04                  |  |                      |  |
| New maximum |            | New minimum                    |                 | New Exceedance        |  | First Time Detection |  |

A review of Table 7-6 indicates:

- > PFOS+PFHxS concentrations in the former GEMS compound ranged between 0.96 (MW140) and 95.8 µg/L (MW110). PFOA concentrations ranged between 0.02 (MW140) and 1.37 µg/L (MW110).
- > Wells MW138 and MW140 reported new maximums for PFOS+PFHxS, PFOS or PFOA during the E2 event.
- > Wells MW139, MW140 and MW229 reported new minimums for PFOS+PFHxS, PFOS or PFOA during the E1 event.
- > MW110 reported a new minimum for PFOA during the E2 event.

7.1.3.5 Secondary Off-Site Sources (Williams Landing and Former Primary Fire Training Area)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at groundwater monitoring locations targeting Secondary Off-Site Sources for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-7 below.

Table 7-7 Secondary Off-Site Sources – Groundwater PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring    |                       |                      |
|-------------|------------|--------------------------------|-------------------|-----------------------|----------------------|
|             |            |                                | E1 (March 2023)   | E2 (July/August 2023) |                      |
| MW130       | PFOS+PFHxS | 19.0                           | 53.9              | 34.6                  |                      |
|             | PFOS       | 4.64                           | 6.51              | 7.33                  |                      |
|             | PFOA       | 0.63                           | 2.12              | 1.00                  |                      |
| MW131       | PFOS+PFHxS | 14.4                           | 106               | 184                   |                      |
|             | PFOS       | 3.18                           | 43.4 <sup>#</sup> | 79.1                  |                      |
|             | PFOA       | 0.56                           | 3.28              | 5.26                  |                      |
| MW137       | PFOS+PFHxS | 0.31                           | 0.98              | 0.41                  |                      |
|             | PFOS       | 0.04                           | 0.68 <sup>#</sup> | 0.25                  |                      |
|             | PFOA       | 0.01                           | 0.04              | 0.03                  |                      |
| New maximum |            | New minimum                    |                   | New Exceedance        | First Time Detection |

Notes:

1. \* Duplicate/triplicate result adopted
2. # - Order of magnitude increase

A review of Table 7-7 indicates:

- > PFOS+PFHxS concentrations in the Off-Site wells ranged between 0.41 (MW137) and 184 µg/L (MW131). PFOA concentrations ranged between 0.03 (MW137) and 5.26 µg/L (MW131).
- > A new exceedance of ecological criteria for PFOS was reported during the E1 event at MW137.
- > Concentrations of PFOS increased by an order of magnitude at MW131 and MW137 during E1. Concentrations of PFOS continued to increase to a new maximum in MW131 during E2, while concentrations decreased in MW137 during E2 from the maximum reported in E1.
- > Wells MW130 and MW137 reported new maximums of PFOS+PFHxS, PFOS or PFOA during E1.
- > Wells MW130 and MW131 reported new maximums of PFOS+PFHxS, PFOS or PFOA during E2.

## 7.2 Surface Water

### 7.2.1 Surface Water Quality Field Parameters

The stabilised surface water quality field parameters recorded during E1 and E2 monitoring events are summarised in Table 7-8 below. Stabilised water quality field parameters, water colour and turbidity observations recorded during the surface water sampling program are presented in Table B2, Appendix B.

Table 7-8 Surface Water Physiochemical Field Parameters

| Event                      | pH   | DO (mg/L)  | EC (µS/cm)   | TDS <sup>1</sup> (mg/L)  | Corrected ORP (mV)   |
|----------------------------|--|--|--|--|--|
| March 2023 (E1)<br>On-Site | 7.81 (SW006)<br>– 8.64 (SW034)<br><i>Neutral to slightly alkaline conditions</i> | 6.88 (SW034)<br>– 6.93 (SW006)<br><i>Aerobic conditions</i>                      | 1,722 (SW034)<br>– 7,340 (SW006)   | 1,119 (SW034) – 4,771 (SW006)<br><i>Fresh to slightly brackish water</i> | 265.9 (SW034)<br>– 302.8 (SW006)<br><i>Slightly reducing to oxidising conditions</i> |
|                            | July/August 2023 (E2)<br>On-Site   | 7.08 (SW005)<br>– 9.97 (SW043)<br><i>Neutral to slightly alkaline conditions</i> | 4.78 (SW005)<br>– 13.21 (SW043)<br><i>Anerobic to Aerobic conditions</i> | 275 (SW043) – 1,576 (SW005)<br><i>Fresh water</i>                        | 163.0 (SW043)<br>– 276.4 (SW034)<br><i>Reducing to oxidising conditions</i>          |

| Event                 | pH  | DO (mg/L)   | EC (µS/cm)                   | TDS <sup>1</sup> (mg/L)                                       | Corrected ORP (mV)   |
|-----------------------|---|---|------------------------------|---|--|
| March 2023 (E1)       | 4.40 (SW027) – 9.01 (SW087)<br><i>Slightly acidic to slightly alkaline conditions</i> | 0.49 (SW073) – 10.28 (SW049)<br><i>Anerobic to Aerobic conditions</i> | 190 (SW027) – 23,609 (SW088) | 123 (SW027) – 15,346 (SW088)<br><i>Fresh to saline water</i>  | 71.3 (SW073) – 333.9 (SW045)<br><i>Slightly reducing to oxidising conditions</i> |
| Off-Site              |   |   |                              |   |  |
| July/August 2023 (E2) | 6.35 (SW027) – 8.53 (SW052)<br><i>Neutral to slightly alkaline conditions</i>         | 2.55 (SW027) – 10.28 (SW049)<br><i>Anerobic to Aerobic conditions</i> | 162 (SW045) – 14,803 (SW086) | 105 (SW045) – 9,622 (SW086)<br><i>Fresh to brackish water</i> | 181.9 (SW041) – 305.4 (SW013)<br><i>Reducing to oxidising conditions</i>         |

<sup>1</sup> EC in µS/cm converted to TDS in mg/L by multiplying by 0.65.

In summary, the field parameter results indicate the following:

- > On-Site: EC, TDS and corrected ORP were generally higher during E1. DO and pH were generally higher during E2.
- > Off-Site: DO, EC, TDS and corrected ORP were generally higher during E1. pH reported greater variability in results during E1.
- > pH and DO was generally lower at Off-Site locations during both events, while EC and TDS were generally higher at Off-Site locations during both events.

The following notable field observations were identified during surface water sampling:

- > Foam on top of the water was noted at locations SW006, SW012 and SW041 during E2.
- > An acid sulfate odour was noted at SW013 during E1.

These observations do not correlate to any apparent changes in PFAS concentrations reported during these events.

### 7.2.2 Laboratory Results

Surface water sampling locations have been indicatively grouped with respect to major PFAS source areas and flow paths across the Site:

- > SA1 – Former Wet Testing Area
- > SA2 – Western Finger
- > SA3 – Former Secondary Fire Training Area
- > Secondary Off-Site Sources (Williams Landing and Former Primary Fire Training Area)
- > Sanctuary Lakes
- > Skeleton Creek Upstream (Background Monitoring Point)

These locations were used to identify trends in PFAS concentrations laterally along indicative surface water flow paths. For each area, Table 7-9 through Table 7-14 present the PFOS+PFHxS, PFOS and PFOA results from the ongoing monitoring program and the range of concentrations from historical results. PFAS concentration changes are highlighted where first-time detections, new exceedances or adopted assessment criteria, new maximums or new minimums are observed.

Laboratory analytical results were compared to the adopted assessment criteria, and are presented in Table B4, Appendix B. The PFOS+PFHxS concentrations in surface water from historical to 2023 are mapped in Figures 7A-7C, Appendix A.

Laboratory certificates of analysis and chain of custody (COC) documentation are included in the Factual Reports, presented in Appendix C and Appendix D.



7.2.2.1 Former Wet Testing Area – SA1

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at surface water monitoring locations targeting the Former Wet Testing Area (SA1) for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-9 below.

Table 7-9 Former Wet Testing Area – Surface Water PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring  |                       |                      |
|-------------|------------|--------------------------------|-----------------|-----------------------|----------------------|
|             |            |                                | E1 (March 2023) | E2 (July/August 2023) |                      |
| SW012       | PFOS+PFHxS | 0.17 – 0.28                    | 0.24            | 0.15                  |                      |
|             | PFOS       | 0.094 – 0.17                   | 0.10            | 0.07                  |                      |
|             | PFOA       | <0.01 – 0.011                  | 0.01            | <0.01                 |                      |
| SW013       | PFOS+PFHxS | 0.13                           | 0.24            | 0.19                  |                      |
|             | PFOS       | 0.08                           | 0.09            | 0.08                  |                      |
|             | PFOA       | <0.01                          | <0.01           | <0.01                 |                      |
| SW020       | PFOS+PFHxS | 0.191 – 0.54                   | 0.47*           | 0.17                  |                      |
|             | PFOS       | 0.11 – 0.23                    | 0.21*           | 0.07                  |                      |
|             | PFOA       | <0.01 – 0.03                   | 0.02*           | <0.01                 |                      |
| SW034       | PFOS+PFHxS | 1.31                           | 55.6#           | 10.9                  |                      |
|             | PFOS       | 1.1                            | 34.6#           | 8.02                  |                      |
|             | PFOA       | 0.01                           | 0.96#           | 0.14                  |                      |
| New maximum |            | New minimum                    |                 | New Exceedance        | First Time Detection |

Notes:

- \* Duplicate/triplicate result adopted
- <0.01 Limit of Reporting
- # - Order of magnitude increase

A review of Table 7-9 indicates:

- > PFOS+PFHxS concentrations in locations targeting the Former Wet Testing Area ranged between 0.15 (SW012) and 55.6 µg/L (SW034). PFOA concentrations ranged between <0.01 (SW013) and 0.96 µg/L (SW034).
- > Concentrations of PFOS+PFHxS, PFOS and PFOA increased by an order of magnitude at SW034 during E1.
- > A new exceedance of recreational criteria for PFOS+PFHxS was reported at an On-Site drain (SW034) during E1.
- > A new minimum of PFOS+PFHxS and PFOS was reported at SW012 and SW020 during E2.
- > A new maximum of PFOS+PFHxS, PFOS or PFOA was reported at SW013 and SW034 during E1.

7.2.2.2 Western Finger (SA2)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at surface water monitoring locations targeting the Western Finger (SA2) for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-10 below.

Table 7-10 Western Finger – Surface Water PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring  |                       |
|-------------|------------|--------------------------------|-----------------|-----------------------|
|             |            |                                | E1 (March 2023) | E2 (July/August 2023) |
| SW024       | PFOS+PFHxS | 0.62                           | 0.22            | 0.15                  |
|             | PFOS       | 0.39                           | 0.10            | 0.07                  |

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring    |                       |
|-------------|------------|--------------------------------|-------------------|-----------------------|
|             |            |                                | E1 (March 2023)   | E2 (July/August 2023) |
| SW043       | PFOA       | 0.03                           | 0.01              | <0.01                 |
|             | PFOS+PFHxS | 0.15                           | NS – Location dry | 0.14                  |
|             | PFOS       | 0.11                           |                   | 0.09                  |
|             | PFOA       | <0.01                          |                   | <0.01                 |
| SW049       | PFOS+PFHxS | 0.237 – 0.39                   | 0.24              | 0.19                  |
|             | PFOS       | 0.14 – 0.2                     | 0.12              | 0.09                  |
|             | PFOA       | 0.01 – 0.012                   | 0.01              | <0.01                 |
| SW073       | PFOS+PFHxS | 0.189                          | 1.30              | 0.15                  |
|             | PFOS       | 0.079                          | 0.43              | 0.05                  |
|             | PFOA       | 0.010                          | 0.02              | <0.01                 |
| SW078       | PFOS+PFHxS | 0.28                           | 0.41              | 0.30                  |
|             | PFOS       | 0.18                           | 0.24              | 0.17                  |
|             | PFOA       | 0.010                          | 0.02              | 0.01                  |
| New maximum |            | New minimum                    | New Exceedance    | First Time Detection  |

Notes:

- <0.01 Limit of Reporting
- NS – Not Sampled

A review of Table 7-10 indicates:

- > PFOS+PFHxS concentrations in locations targeting the Western Finger ranged between 0.14 (SW043) and 1.30 µg/L (SW073). PFOA concentrations ranged between <0.01 (SW024, SW049 and SW073) and 0.02 µg/L (SW073 and SW078).
- > A new exceedance of ecological criteria for PFOS was reported at a location in Skeleton Creek downstream of SA2 (SW073) during E1.
- > A new minimum of PFOS+PFHxS, PFOS or PFOA was reported at all locations targeting downgradient of SA2 during E2.
- > A new maximum of PFOS+PFHxS, PFOS and PFOA was reported at SW073 and SW078 during E1.

### 7.2.2.3 Former Secondary Fire Training Area (SA3)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at surface water monitoring locations targeting the Former Secondary Fire Training Area (SA3) for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-11 below.

Table 7-11 Former Secondary Fire Training Area – Surface Water PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring    |                       |
|-------------|------------|--------------------------------|-------------------|-----------------------|
|             |            |                                | E1 (March 2023)   | E2 (July/August 2023) |
| SW005       | PFOS+PFHxS | <0.01 – 0.05                   | NS – Location Dry | 0.10#                 |
|             | PFOS       | <0.01 – 0.03                   |                   | 0.02                  |
|             | PFOA       | <0.01                          |                   | <0.01                 |
| SW006       | PFOS+PFHxS | 0.01                           | 0.02*             | <0.01                 |
|             | PFOS       | 0.01                           | 0.01              | <0.01                 |
|             | PFOA       | <0.01                          | <0.01             | <0.01                 |
| SW008       | PFOS+PFHxS | 0.04                           | NS – Location Dry | NS – Location Dry     |
|             | PFOS       | 0.04                           |                   |                       |

|                    |                    |                       |                             |       |
|--------------------|--------------------|-----------------------|-----------------------------|-------|
|                    | PFOA               | <0.01                 |                             |       |
| SW015              | PFOS+PFHxS         | <0.01 – 0.0348        | 0.02                        | 0.06  |
|                    | PFOS               | <0.01 – 0.015         | 0.01                        | 0.01  |
|                    | PFOA               | <0.01 – 0.062         | <0.01                       | <0.01 |
| <b>New maximum</b> | <b>New minimum</b> | <b>New Exceedance</b> | <b>First Time Detection</b> |       |

1. \* Duplicate/triplicate result adopted
2. <0.01 Limit of Reporting
3. NS – Not Sampled
4. # - Order of magnitude increase from last time location was sampled in 2019.

A review of Table 7-11 indicates:

- > PFOS+PFHxS concentrations in locations targeting the Former Secondary Fire Training Area ranged between <0.01 (SW006) and 0.10 µg/L (SW005). PFOA concentrations were reported at <0.01 for all locations sampled.
- > An order of magnitude increase of PFOS+PFHxS was reported at the drainage area (SW005) downstream of SA3) in E2.
- > A new minimum of PFOS was reported at SW008 during E2.
- > A new maximum of PFOS+PFHxS were reported at SW006 during E1 and at SW005 and SW015 during E2.

7.2.2.4 Secondary Off-Site Sources (Williams Landing and Former Primary Fire Training Area)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at surface water monitoring locations targeting Secondary Off-Site Sources for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-12 below.

Table 7-12 Secondary Off-Site Sources – Surface Water PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID        | Analyte            | Historical Concentration Range | OMP Monitoring              |                       |
|--------------------|--------------------|--------------------------------|-----------------------------|-----------------------|
|                    |                    |                                | E1 (March 2023)             | E2 (July/August 2023) |
| SW027              | PFOS+PFHxS         | 0.32                           | 0.57                        | 0.20                  |
|                    | PFOS               | 0.24                           | 0.47                        | 0.15                  |
|                    | PFOA               | 0.01                           | 0.01                        | <0.01                 |
| SW030              | PFOS+PFHxS         | 0.04                           | 0.09                        | 0.01                  |
|                    | PFOS               | 0.04                           | 0.04                        | 0.01                  |
|                    | PFOA               | 0.06                           | 0.02                        | <0.01                 |
| SW042              | PFOS+PFHxS         | 0.09 – 0.394                   |                             | 0.25^                 |
|                    | PFOS               | 0.06 – 0.33                    | NS – Location Dry           | 0.18^                 |
|                    | PFOA               | 0.01 – 0.017                   |                             | 0.01^                 |
| SW045              | PFOS+PFHxS         | 0.008 – 0.01                   | 0.01                        | 0.02                  |
|                    | PFOS               | 0.006 – 0.009                  | <0.01                       | 0.02                  |
|                    | PFOA               | 0.008 – 0.009                  | 0.01                        | <0.01                 |
| <b>New maximum</b> | <b>New minimum</b> | <b>New Exceedance</b>          | <b>First Time Detection</b> |                       |

Notes:

1. <0.01 Limit of Reporting
2. ^ - SW042 sampled in standalone event on 17 October 2023 as location was dry during the E2 sampling event in July/August 2023.

A review of Table 7-12 indicates:

- > PFOS+PFHxS concentrations in locations targeting Secondary Off-Site Sources ranged between 0.01 (SW030 and SW045) and 0.57 µg/L (SW027). PFOA concentrations ranged from <0.01 (SW027, SW030 and SW045) to 0.02 µg/L (SW030).
- > A new minimum for PFOS was reported at SW045 during E1.
- > A new minimum of PFOS+PFHxS, PFOS or PFOA was reported at SW027, SW030 and SW045 during E2.
- > A new maximum of PFOS+PFHxS, PFOS or PFOA was reported at SW027, SW030 and SW045 during E1.
- > A new maximum of PFOS+PFHxS and PFOS was reported at SW045 during E2.

### 7.2.2.5 Sanctuary Lakes

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at surface water monitoring locations in Sanctuary Lakes for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-13 below.

Table 7-13 Sanctuary Lakes – Surface Water PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring  |                       |                      |
|-------------|------------|--------------------------------|-----------------|-----------------------|----------------------|
|             |            |                                | E1 (March 2023) | E2 (July/August 2023) |                      |
| SW052       | PFOS+PFHxS | 0.028                          | 0.04            | 0.05                  |                      |
|             | PFOS       | 0.016                          | 0.02            | 0.02                  |                      |
|             | PFOA       | 0.005                          | <0.01           | <0.01                 |                      |
| SW085       | PFOS+PFHxS | 0.036                          | 0.06            | 0.07                  |                      |
|             | PFOS       | 0.022                          | 0.02            | 0.04                  |                      |
|             | PFOA       | 0.006                          | <0.01           | <0.01                 |                      |
| SW086       | PFOS+PFHxS | 0.06                           | 0.08            | 0.06*                 |                      |
|             | PFOS       | 0.038                          | 0.04            | 0.03*                 |                      |
|             | PFOA       | 0.007                          | <0.01           | <0.01*                |                      |
| SW087       | PFOS+PFHxS | 0.202                          | 0.09            | 0.06*                 |                      |
|             | PFOS       | 0.16                           | 0.05            | 0.03*                 |                      |
|             | PFOA       | 0.008                          | <0.01           | <0.01*                |                      |
| SW088       | PFOS+PFHxS | 0.058                          | 0.16*           | 0.06*                 |                      |
|             | PFOS       | 0.033                          | 0.08*           | 0.03*                 |                      |
|             | PFOA       | 0.007                          | 0.02*           | <0.01                 |                      |
| New maximum |            | New minimum                    |                 | New Exceedance        | First Time Detection |

1. \* Duplicate/triplicate result adopted
2. <0.01 Limit of Reporting

A review of Table 7-13 indicates:

- > A new minimum of PFOS+PFHxS, PFOS or PFOA was reported at SW052, SW085, SW086 and SW087 during E1.
- > A new minimum of PFOS+PFHxS, PFOS or PFOA was reported at SW086, SW087 and SW088 during E2.
- > A new maximum of PFOS+PFHxS, PFOS or PFOA was reported at SW052, SW086 and SW088 during E1.
- > A new maximum of PFOS+PFHxS or PFOS was reported at SW052 and SW085 during E2.

7.2.2.6 Skeleton Creek Upstream (Background Monitoring Point)

A summary of the PFOS, PFOA and PFOS+PFHxS concentrations at the surface water monitoring location in Skeleton Creek Upstream for the monitoring period, and the concentration range across all historical monitoring events, are presented in Table 7-14 below.

Table 7-14 Skeleton Creek Upstream – Surface Water PFOS+PFHxS, PFOS and PFOA Concentrations (µg/L)

| Location ID | Analyte    | Historical Concentration Range | OMP Monitoring  |                       |
|-------------|------------|--------------------------------|-----------------|-----------------------|
|             |            |                                | E1 (March 2023) | E2 (July/August 2023) |
| SW041       | PFOS+PFHxS | 0.014 – 0.18                   | 0.01            | <0.01                 |
|             | PFOS       | 0.008 – 0.16                   | <0.01           | <0.01                 |
|             | PFOA       | <0.01 – 0.005                  | <0.01           | <0.01                 |
| New maximum |            | New minimum                    | New Exceedance  | First Time Detection  |

Notes:

- <0.01 Limit of Reporting

A review of Table 7-14 indicates:

- > A new minimum of PFOS was reported at SW041 during E1.
- > A new minimum of PFOS+PFHxS was reported at SW041 during E2.

### 7.3 Summary

A summary of the maximum PFOS+PFHxS concentrations historically recorded, and the maximum concentrations recorded during the monitoring period are presented in Table 7-15 for each media assessed and investigation area.

Table 7-15 Maximum detected PFOS+PFHxS concentrations

| Investigation Area  | PFOS+PFHxS Maximums |                    |                      |
|---|---------------------|--------------------|----------------------|
|   | Phase               | Groundwater (µg/L) | Surface Water (µg/L) |
| Former Wet Testing Area (SA1)   | Historical          | 1,360              | 1.31                 |
|   | 2023                | 821                | 55.6                 |
| Western Finger (SA2)  | Historical          | 27.4               | 0.62                 |
|   | 2023                | 21.7               | 1.3                  |
| Secondary Fire Training (SA3)   | Historical          | 2.41               | 0.05                 |
|   | 2023                | 1.49               | 0.1                  |
| Former GEMS Compound (SA4)  | Historical          | 134                | -                    |
|   | 2023                | 95.8               | -                    |
| Secondary Off-Site Sources<br>(Williams Landing and Former<br>Primary Fire Training Area) | Historical          | 19                 | 0.394                |
|   | 2023                | 184                | 0.57                 |
| Sanctuary Lakes   | Historical          | -                  | 0.202                |
|   | 2023                | -                  | 0.16                 |
| Skeleton Creek Upstream<br>(Background Monitoring Point)                                  | Historical          | -                  | 0.18                 |
|   | 2023                | -                  | 0.01                 |

It is noted that concentration maximums reported in 2023 are generally of the same order of magnitude as historical data with the following exceptions:

- > Former Wet Testing Area: the maximum surface water concentration was one order of magnitude higher than the historical data.
- > Secondary Off-Site Sources: the maximum groundwater concentration was approximately one order of magnitude higher than the historical maximum.
- > Skeleton Creek Upstream: the maximum surface water concentration was one order of magnitude lower than the historical data.

## 8 Interpretive Analysis

This section discusses the results of the two monitoring events in 2023 in the context of observed trends in concentrations or plume migration patterns. It should be noted that there is limited temporal data available for the media/locations sampled at this stage. However, where possible, data was reviewed and observed from a qualitative perspective, based on time-series plots and the results presented in Section 7.

In order to undertake statistical trend analysis, sufficient temporal data is required (i.e. 8-10 sampling events, Department of Defence 2021). To the end of the current monitoring period (December 2023), there have only been three or four sampling events completed at all groundwater and surface water locations. Therefore, there is insufficient temporal data to undertake statistical trend analysis. As a result, trends have been identified as "potential" based on a qualitative review of concentration changes over time.

### 8.1 Groundwater

#### 8.1.1 Groundwater Quality Field Parameters

Measurements presented in Table 7-1 indicate that both On-Site and Off-Site groundwater samples are generally:

- > Neutral to slightly basic
- > Fresh to brackish and saline
- > Reducing to oxidising groundwater conditions.

On review of Figure 8 in Appendix A, there is no apparent explanation for the distribution of wells with fresh, brackish or saline water across the MA. In general, the majority of wells with the lowest EC (fresher) are located in the southern and southwestern portions of the Site, while wells with higher EC (brackish to saline) are located in the northern, central and eastern portions of the Site, as well as Off-Site. Monitoring wells MW130 and MW131, located in Williams Landing, reported EC measurements that were more saline than On-Site and other Off-Site locations. Given the distribution of fresh to brackish and saline locations across the MA, it is unclear why this area of Williams Landing contains more saline water, but it is consistent with concentrations reported during the DSI (Aurecon, 2020).

#### 8.1.2 Groundwater PFAS Concentrations Over Time

Groundwater PFAS concentrations from 2016 to August 2023 are presented in Figures 6A to 6C, Appendix A. Analysis of PFAS results presented in Section 7.1.3 indicate that from 2016 to August 2023 a gradual increase, including up to one order of magnitude increases in PFAS concentrations, occurred at a few locations targeting secondary Off-Site sources in Williams Landing. Overall, PFAS concentrations appeared generally consistent between each monitoring event. Observed potential trends are discussed within the following sections.

As presented in Section 7.1.3, PFAS results were arranged into five groups based on locations and source area/s:

- > Former Wet Testing Area (SA1)
- > Western Finger (SA2)
- > Former Secondary Fire Training Area (SA3)
- > Former GEMS Compound (SA4)
- > Secondary Off-Site Sources (Williams Landing and Former Primary Fire Training Area)

Each source area and inferred downgradient locations are discussed in the following sections.

##### 8.1.2.1 Former Wet Testing Area (SA1)

Upon review of Table 7-3 and the locations of wells within the Former Wet Testing Area, the following evaluations were made:

- > PFAS concentrations within and downgradient of SA1 are the highest reported within the MA, consistent with the findings in the DSI (Aurecon, 2020). The wells with the highest concentrations are MW163 and MW208, located in the central eastern portion of the Former Wet Testing Area, and MW105, located downgradient of the area, at the southern Site boundary.

- > A new exceedance of ecological criteria for PFOS was reported north and upgradient of SA1, downgradient from the golf course (MW211) during E1. In the following monitoring round E2, concentrations reduced to below criteria, but remained higher than historical monitoring. Further monitoring is required to determine any long-term trends.
- > PFAS concentrations in two wells (MW163 and MW117) of the Former Wet Testing Area reported new minimums of PFOS+PFHxS, PFOS and PFOA during the 2023 monitoring period. The wells south and downgradient of each of these locations (MW208, south of MW163 and MW118, south of MW117) have however reported new maximums of PFOS+PFHxS, PFOS and PFOA during the 2023 monitoring period. Further monitoring is required to determine any long-term trends. Whilst concentrations are potentially decreasing at MW163, this location has continued to report the highest PFAS concentrations across the MA.
- > A first-time detection of PFOA was reported at a well on the southern boundary (MW109) targeting SA1 during E1. The following monitoring event (E2) confirmed this detection with MW109 reporting a new maximum, indicating a potential increasing trend, though concentrations of PFOA remain low and below adopted assessment criteria. PFOS+PFHxS and PFOS have also reported potential increasing trends at this location. As other PFAS analytes have been historically observed at this location, this first-time detection of PFOA is not considered to be associated with a new source.
- > The remaining two On-Site wells downgradient of SA1 (MW105 and MW107) both reported new maximums during the monitoring period. The new maximum concentration reported at MW105 is an approximately 3x increase from the concentrations reported during the DSI, and indicates potentially increasing concentrations of PFAS at the southern Site boundary along the inferred groundwater flow path. Further monitoring is required to determine any long-term trends.
- > Further downgradient, Off-Site well MW228 reported new minimum PFAS concentrations during E1. Concentrations increased in E2 but remained below historical concentrations reported during the DSI. Further monitoring is required to determine any long-term trends.

#### 8.1.2.2 Western Finger (SA2)

Upon review of Table 7-4 and the locations of wells targeting the Western Finger, the following evaluations were made:

- > PFAS concentrations surrounding the industrial buildings within the western portion of the Western Finger area (MW200, MW192, MW185, MW182, MW155, MW152 and MW124) reported new minimum concentrations of PFOS+PFHxS, PFOS or PFOA during the monitoring period. Concentrations at MW182 and MW200 reported new minimums for all three key PFAS analytes during E2 and indicate a potential decreasing trend. Further downgradient near Skeleton Creek, well MW121 reported new maximums for PFOS+PFHxS and PFOS in E2, and a new maximum for PFOA in E1, and may indicate a potential increasing trend. While concentrations have increased during the monitoring period, results are approximately three times lower than the concentrations reported at the closest upgradient location (MW124).
- > PFAS concentrations in the north, east and to the southeast downgradient of the Western Finger source area (MW102, MW103, MW120 and MW123) reported new maximums during the monitoring period. Concentrations at MW103 reported new maximums for PFOS+PFHxS, PFOS and PFOA in E2, and may indicate a potential increasing trend. Further monitoring is required to determine any long-term trends.
- > A new exceedance of recreational criteria for PFOS+PFHxS was reported during E1 in the Off-Site public open space near Skeleton Creek (MW123) south of Site. MW123 also reported new maximums for PFOS+PFHxS, PFOS and PFOA in E2, indicating a potential increasing trend. This new exceedance is unlikely to impact human health in the immediate surrounds as no groundwater use north or south of Skeleton Creek has been identified, as discussed in the DSI (Aurecon, 2020). At the nearest downgradient surface water sampling location within Skeleton Creek (SW013), PFAS concentrations are below recreational criteria and approximately one order of magnitude lower than those reported at MW123. PFOS+PFHxS concentration for MW123 was reported as 2.78 µg/L in E1 and 2.90 µg/L in E2 whereas PFOS+PFHxS concentration for SW013 was reported as 0.24 µg/L in E1 and 0.19 µg/L in E2. Further monitoring is required to determine any long-term trends.
- > Overall, while new maximums and new minimums were reported at all locations during the monitoring period, PFAS concentrations were within the same order of magnitude as historical results, and generally consistent between the E1 and E2 monitoring events.



### 8.1.2.3 Former Secondary Fire Training Area (SA3)

Upon review of Table 7-5 and the locations of wells targeting the Former Secondary Fire Training Area, the following evaluations were made:

- > A first-time detection of PFOS was reported for MW115 slightly above LOR and below relevant assessment criteria. As other PFAS compounds have been historically observed at this location, this first-time detection of PFOS is not considered to be associated with a new source or pathway. MW115 was installed as a background monitoring location to establish the presence of Off-Site sources. The concentrations report in the 2023 monitoring period (E1 and E2) are generally consistent with the findings in the DSI (Aurecon, 2020), and indicate that while there are PFAS impacts migrating onto the Site from Off-Site upgradient sources, concentrations are low and below adopted assessment criteria. Further monitoring is required to assess any long-term trends.
- > The remaining wells targeting SA3 reported new minimum concentrations for PFOS+PFHxS, PFOS or PFOA during the monitoring period, but concentrations remained within the same order of magnitude and generally comparable with historical data. Further monitoring is required to determine any long-term trends.

### 8.1.2.4 Former GEMS Compound (SA4)

Upon review of Table 7-6 and the locations of wells targeting the Former GEMS Compound, the following evaluations were made:

- > Well MW140, located upgradient of SA4, reported a new minimum concentration of PFOS+PFHxS in E1, followed by a new maximum concentration of PFOS+PFHxS and PFOS in E2. While fluctuations in concentration have been reported, overall, the concentrations are within the same order of magnitude and generally comparable to the concentrations reported during the DSI.
- > The highest reported concentration targeting SA4 is located to the east of the Former GEMS Compound (MW110) and remains consistent with the findings of the DSI (Aurecon, 2020). Concentrations reported in the 2023 monitoring period (E1 and E2) are within the historical range, indicating a potentially stable trend. MW139 is located directly to the west of MW110 and has reported the second highest concentrations in this area, though concentrations have reduced from the levels reported during the DSI and new minimums were reported for PFOS+PFHxS, PFOS and PFOA during E1. Further monitoring is required to determine any long-term trends.
- > PFAS concentrations in the southeast corner of the Former GEMS Compound (MW138) at the location where groundwater discharges Off-Site reported new maximums during the E2 event, and indicates potentially increasing concentrations of PFAS at the southern Site boundary, in the direction of inferred groundwater flow. This part of the Site is in a low-lying area and may be impacted by surface water run-off, as identified in the DSI (Aurecon, 2020) which may have influenced the higher concentrations during E2, however there are no surface water sampling locations in this area to evaluate this. Further monitoring is required to determine any long-term trends.
- > Off-Site well MW229 located downgradient of SA4 reported concentrations generally consistent with historical data, though new minimum concentrations of PFOS+PFHxS, PFOS and PFOA were reported during E1. Further monitoring is required to determine any long-term trends.

### 8.1.2.5 Secondary Off-Site Sources (Williams Landing and Former Primary Fire Training Area)

Upon review of Table 7-7 and the locations of Off-Site wells targeting the Secondary Off-Site Sources, the following evaluations were made:

- > A new exceedance of ecological criteria for PFOS was reported at the northern most location (MW137) in Williams Landing during E1 (0.68 µg/L), which was also an order of magnitude increase from concentrations reported during the DSI (0.04 µg/L). PFAS concentrations decreased during the E2 event, but PFOS still remained above ecological criteria (0.25 µg/L). This well is upgradient of sources associated with the former Base extents and may indicate potential Off-Site upgradient sources of PFAS impacts. Further monitoring is required to determine any long-term trends.
- > Monitoring well MW131, located in the northwest corner of the Former Primary Fire Training Area in Williams Landing, recorded an order of magnitude increase for PFOS during E1 (from 3.18 µg/L in DSI to 43.4 µg/L in E1) and recorded new maximums for PFOS+PFHxS (184 µg/L), PFOS (79.1 µg/L) and PFOA (5.26 µg/L) during E2. These results indicate a potential increasing trend and has recorded the highest Off-Site concentrations. Well MW129, previously located downgradient of MW131, was scheduled for sampling during E2, but could not be found in an area of recent road redevelopment

works and therefore there are no existing wells available to assess groundwater PFAS concentrations downgradient of MW131.

- > The remaining Off-Site monitoring well (MW130) located cross-gradient of MW131 and adjacent to the Former Primary Fire Training Area also reported new maximums in the 2023 monitoring period, however PFAS concentrations generally decreased in the E2 event compared to E1. As outlined in the DSI, this may be due to the highly fractured geology surrounding MW131 causing a potential preferential pathway for PFAS concentrations to migrate (Aurecon, 2020). Further monitoring is required to determine any long-term trends.
- > Overall, all three monitoring wells targeting Secondary Off-Site Sources have reported new maximums during the monitoring period.

## 8.2 Surface Water

### 8.2.1 Surface Water Quality Field Parameters

Field parameters presented in Table 7-8 indicate that surface water sampled is generally:

- > Slightly acidic to slightly alkaline
- > Fresh to saline water
- > Reducing to oxidising

Water generally became more brackish to the south towards Sanctuary lakes and fresher further north in Skeleton Creek and Laverton Creek. Conductivity varied significantly between events for On-Site and Off-Site locations.

### 8.2.2 Surface Water – Groundwater Interaction

Surface water and groundwater interaction takes place throughout the management area and the findings from the DSI (Aurecon, 2020) is summarised below:

- > The On-Site creek, Laverton Creek, has a high potential for groundwater interaction. This is a considered to be a generally gaining surface water system.
- > The Off-Site creek, Skeleton Creek, has a high potential for groundwater interaction and is a gaining surface water system.

### 8.2.3 Rainfall

In the seven days prior to the E1 sampling event, 0.2 mm of rain was recorded, and during the sampling event (14 to 22 March 2023) 1 mm of rain was recorded. Data taken at the nearest weather station (087031) located On-Site in the northwest portion of the Site. The monthly rainfall (27.2 mm) recorded in March 2023 was lower than the monthly average rainfall in March between 2021 and 2022 of 45.2 mm. This allowed for sampling of 19 of the 23 proposed surface water locations.

In the seven days prior to the E2 sampling event, 4.8 mm of rain was recorded, and during the sampling event (31 July to 3 August) 2.6 mm of rain was recorded. Data taken from the nearest weather station (087031), located in the northwest portion of the Site. The monthly rainfall (14.8 mm) recorded in July 2023 was lower than the monthly average rainfall in July between 2021 and 2022 of 27.06 mm.

### 8.2.4 Surface Water PFAS Concentrations Over Time

Surface water PFAS concentrations from 2018 to August 2023 are shown in Figures 7A to 7C, Appendix A. Results for PFAS presented in Section 0, indicate that between the 2018 and August 2023 monitoring events, surface water PFAS concentrations have generally remained within the same order of magnitude. Over the OMP monitoring events, fluctuations in concentration have been observed, with most locations reporting both new minimums and new maximums. While fluctuations have been observed, concentrations have generally remained within the same order of magnitude, with the exception of two monitoring locations where order of magnitude increases were reported: SW034 (Former Wet Testing Area) and SW005 (Former Secondary Fire Training Area). Observed potential trends are discussed within the following sections.

As presented in Section 0, PFAS results were arranged into five groups based on locations and source area/s:

- > SA1 – Former Wet Testing Area
- > SA2 – Western Finger

- > SA3 – Former Secondary Fire Training Area
- > Secondary Off-Site Sources (Williams Landing and Former Primary Fire Training Area)
- > Sanctuary Lakes
- > Skeleton Creek Upstream (Background Monitoring Point)

Each source area and inferred downgradient locations are discussed in the following sections.

#### 8.2.4.1 Former Wet Testing Area (SA1)

Upon review of Table 7-9 and the locations of surface water sampling points within the Former Wet Testing Area, the following evaluations were made:

- > An order of magnitude increase of PFOS+PFHxS, PFOS and PFOA was reported at the stormwater drain downgradient of SA1 located On-Site (SW034) during E1 (PFOS+PFHxS increased from 1.31 µg/L in DSI to 55.6 µg/L in E1). During E2, PFOS+PFHxS concentration was 10.9 µg/L, which was a decrease of approximately five times from E1 but remained approximately one order of magnitude higher than concentrations reported during the DSI. This fluctuation in PFAS concentration between E1, E2 and the DSI may be influenced by the following factors:
  - DSI: Sampled following a significant rain event, where moderate flow was recorded at the time of sampling. EC (48.2 µS/cm) and TDS (31.33 mg/L) readings were low, indicating fresh water was present at the time of sampling.
  - E1: Lower rainfall in January and February 2023 preceding E1 as discussed in Sections 2.1.3 and 8.2.3. Additionally, the EC and TDS data from E1 was 1,722 µS/cm and 1,119 mg/L, respectively, and the water in the drain was observed as stagnant. Due to the low rainfall preceding the event, PFAS may have been more concentrated in the small amount of water remaining in the drain.
  - E2: Rainfall of 4.8 mm was recorded preceding the E2 event, while the EC and TDS data from E2 was 380 µS/cm and 247 mg/L indicating fresher water compared to E1, and the flow of water in the drain was observed as low. Further monitoring is required to determine long-term trends.
- > The PFAS concentrations for the stormwater drain On-Site (SW034) was the highest surface water concentration reported for the target source area and overall management area. This location had the second highest concentrations reported during the DSI (Aurecon, 2020), with the highest being reported at SW035 within Laverton RAAF Swamp. The drainage network downstream of SW034 is not well understood, however, it is understood that water from this location ultimately discharges to Skeleton Creek. At this stage it is difficult to determine whether these results represent natural fluctuations in response to climatic conditions or are symptomatic of other factors.
- > PFAS concentrations in Off-Site surface water monitoring locations along Skeleton Creek targeting downgradient of SA1 near the point of discharge to Skeleton Creek (SW012, SW013 and SW020) have remained within the same order of magnitude and generally consistent with historical concentrations. SW013 reported new maximums for PFOS+PFHxS and PFOS during E1 when stagnant water was observed and higher EC (8,060 µS/cm) and TDS (5,239 mg/L) readings were measured, compared to the low flow observed and lower EC (4,564 µS/cm) and TDS (2,967 mg/L) readings measured during E2. SW012 and SW020 reported new minimums for PFOS+PFHxS and PFOS during E2. Low flow conditions were observed at SW012 and SW020 during both E1 and E2, but water was fresher during E2 based on the lower EC and TDS readings, which were approximately half the readings measured during E1. Further monitoring is required to determine any long-term trends at these locations.

#### 8.2.4.2 Western Finger (SA2)

Upon review of Table 7-10 and the locations of surface water sampling points targeting the Western Finger, the following evaluations were made:

- > The On-Site discharge point for SA2 in the southwestern portion of the Site (SW043) was unable to be sampled during E1 due to the location being dry. It was sampled during the following monitoring event (E2) and recorded new minimum PFOS+PFHxS and PFOS concentrations but remained generally comparable with the historical data. During sampling in E2, stagnant water was observed, but water was noted as being clear and EC (275 µS/cm) and TDS (179 mg/L) readings were low. Whilst concentrations remain below ecological criteria at the discharge point, results indicate that PFAS is continuing to be discharged Off-Site from this source area and into Skeleton Creek.
- > A new exceedance of ecological criteria for PFOS was reported at surface water monitoring location (SW073) during E1, located directly downgradient from the SA2 discharge point (SW043) where surface water enters Skeleton Creek. New maximum concentrations for PFOS+PFHxS (1.30 µg/L), PFOS (0.43

µg/L) and PFOA (0.02 µg/L) were also reported during E1, with low flow observed and high EC (14,940 µS/cm) and TDS (9,711 mg/L) readings. In the following monitoring event (E2), concentrations decreased to new minimums for all three key PFAS analytes, and PFOS concentrations reduced to below ecological criteria (0.05 µg/L). During E2, flow was still observed to be low, but water was fresher based on the lower EC (4,162 µS/cm) and TDS (2,705 mg/L) readings. Further monitoring is required to determine any long-term trends.

- > Two Off-Site surface water monitoring locations downgradient of SA2 along Skeleton Creek (SW024 and SW049) have decreased from historical data in E1 and recorded new minimums during the E2 event, indicating a potential decreasing trend. The flow of water observed during both E1 and E2 was low, but fresher water was present during E2 based on the lower EC and TDS readings. Further monitoring is required to determine any long-term trends.
- > New maximum concentrations for PFOS+PFHxS (0.41 µg/L), PFOS (0.24 µg/L) and PFOA (0.02 µg/L) were reported at the furthest downgradient monitoring point within Skeleton Creek (SW078) during E1. The following monitoring event (E2) concentrations decreased, and a new minimum for PFOS (0.01 µg/L) was reported. The flow of water was observed to be low in both events, but fresher water was present during E2 based on the lower EC and TDS readings. Further monitoring is required to determine any long-term trends.

#### 8.2.4.3 Former Secondary Fire Training Area (SA3)

Upon review of Table 7-11 and the locations of surface water sampling points targeting SA3, the following evaluations were made:

- > The surface water monitoring location upstream of SA3 within Doherty's Drain in the northwestern corner of the Site (SW008) was dry for both monitoring rounds in 2023. During the DSI, this location was sampled once in 2018 and reported PFOS (0.04 µg/L) and PFOS+PFHxS (0.04 µg/L) above LOR but below criteria. Monitoring from E1 and E2 indicates this location is ephemeral and likely to be generally dry, except following sufficient rainfall. As SW008 was dry during both events, no recent data regarding PFAS concentrations in surface water at this location since 2018 is known, which presents a data gap regarding potential changes in contribution of PFAS to site from Off-Site sources.
- > The surface water monitoring location within Laverton Creek upstream of SA3 in the northeastern portion of the Site (SW006) reported a new maximum PFOS+PFHxS concentration (0.02 µg/L) in E1, followed by a new minimum (<0.01 µg/L) in E2 where PFAS was not reported above the laboratory LOR. A new minimum for PFOS was also reported in E2 (<0.01 µg/L). The flow of water was observed to be low in both events, but fresher water was present during E2 based on the lower EC and TDS readings. These results indicate that while there are PFAS impacts migrating onto the Site from Off-Site upgradient sources, concentrations remain low and generally comparable with historical concentrations.
- > The remaining surface water locations targeting downgradient of SA3 (SW005, within Doherty's Drain where it enters Laverton Creek, and SW015, located Off-Site in Laverton Creek at the point of discharge off the Site) reported new maximums for PFOS+PFHxS during E2 (SW005 = 0.10 µg/L; SW015 = 0.06 µg/L), which was also an order of magnitude increase at SW005 from the last time this location was sampled in 2019 (<0.01 µg/L). SW005 was dry during E1 and low flow was observed during E2 with low EC (1,576 µS/cm) and TDS (1,024 mg/L) readings. At SW015, medium flow was observed during both events, but fresher water was present during E2 based on the lower EC and TDS readings. While new maximums were reported, results remain below adopted ecological and human health criteria, indicating that this source area does not appear to be contributing PFAS concentrations above adopted criteria to Laverton Creek. Further monitoring is required to determine any long-term trends.

#### 8.2.4.4 Secondary Off-Site Sources (Williams Landing and Former Primary Fire Training Area)

Upon review of Table 7-12 and the locations of surface water sampling points located in Williams Landing, the following evaluations were made:

- > The Off-Site surface water monitoring location in Forsyth Road Drain upstream of Laverton RAAF Swamp at the northwestern corner of the MA (SW045) has reported minor fluctuations in concentration across E1 and E2, with new minimums and new maximums reported in both E1 and E2. Results have all been within the same order of magnitude and generally comparable to historical concentrations. The observed flow of water was low in E1 and stagnant in E2, and the EC and TDS readings were generally consistent, but slightly lower during E2. The results indicate that while there are PFAS impacts migrating onto the MA from Off-Site upgradient sources, concentrations are low and below adopted ecological and recreational criteria.

- > Samples collected from two surface water bio retention ponds Off-Site in Williams Landing upstream of Laverton RAAF Swamp (SW027 and SW030) reported new maximums for PFOS+PFHxS (SW027 = 0.57 µg/L; SW030 = 0.09 µg/L) during E1 and new minimums for PFOS+PFHxS (SW027 = 0.20 µg/L; SW030 = 0.01 µg/L), PFOS (SW027 = 0.15 µg/L; SW030 = 0.01 µg/L) and PFOA (SW027 and SW030 = <0.01 µg/L) during E2. SW027 also reported a new maximum for PFOS (0.47 µg/L) during E1. At both locations, the flow of water was observed to be low in E1 and stagnant in E2, but less water was present during E1 at both locations, therefore PFAS may have been more concentrated compared to E2. EC and TDS readings were consistent for both events at SW027, while SW030 reported lower EC and TDS readings during E2. Overall, concentrations are within the same order of magnitude as historical and across both monitoring events. Further monitoring is required to determine any long-term trends.
- > The discharge point for Laverton RAAF Swamp in Williams Landing prior to entering Skeleton Creek (SW042) was unable to be sampled during E1 due to the location being dry. The location was also found to be dry during E2 but was sampled in October following a rain event. During E2, stagnant water was observed, and EC (311 µS/cm) and TDS (202 mg/L) readings were low, indicating fresh water was present during sampling. Results from the October 2023 sampling reported concentrations within the historical range and above adopted ecological criteria for PFOS (0.18 µg/L). During E2, PFOS+PFHxS results at SW042 (0.25 µg/L) were approximately one order of magnitude higher than those reported at upstream locations SW045 (0.01 µg/L) and SW030 (0.01 µg/L), and within the same order of magnitude and generally comparable to concentrations reported at upstream location SW027 (0.20 µg/L). This indicates that Laverton RAAF Swamp is continuing to contribute PFAS above ecological criteria to Skeleton Creek. Further monitoring is required to determine any long-term trends.

#### 8.2.4.5 Sanctuary Lakes

Upon review of Table 7-13 and the locations of surface water sampling points in Sanctuary Lakes, the following evaluations were made:

- > PFAS concentrations at all locations within Sanctuary Lakes, including upstream location SW052, were generally comparable and within the same order of magnitude as historical data throughout the monitoring events in 2023 (E1 and E2). All locations also reported results below adopted ecological and recreational criteria during both events. While concentrations were generally comparable, all locations reported fluctuations with new minimums and new maximums reported at all locations during E1 and E2, except SW087, which only reported new minimums. Observed flow conditions were variable across the monitoring events and ranged from stagnant to high flow, with no clear pattern regarding flow observations between events. EC and TDS readings were lower at all locations during E2, indicating fresher water was present during sampling. The fluctuation in concentrations may be due to the nature of the artificial lake and the water circulation that occurs within the lake which includes pumping of 16 ML/d during four-week periods from April 1, July 1 and September 1 to maintain salinities above 10,000 mg/L, maintain circulation and a constant water level, as summarised in the HHRA (EnRiskS, 2022) and Section 2.1.2 of this report. This pumping and circulation within the lake is anticipated to influence the migration of PFAS impacts.
- > The highest reported concentrations in Sanctuary Lakes during the monitoring period were at the most southeast point of Sanctuary Lakes (SW088) during E1, which is the point of overflow back to Skeleton Creek. Concentrations subsequently decreased and reported new minimums during E2 and were consistent with the concentrations reported at all other locations within Sanctuary Lakes. The flow of water was observed to be low in E1 and stagnant in E2, but EC (13,943 µS/cm) and TDS (9,063 mg/L) readings were lower in E2, indicating fresher water was present during sampling compared to the readings during E1 (EC = 23,609 µS/cm; TDS = 15,346 mg/L).
- > The nearest sample location to Sanctuary Lakes in Skeleton Creek (SW078) has generally reported concentrations approximately five times higher than those reported within Sanctuary Lakes. The flow of water was observed to be low in E1 and E2, while EC and TDS readings were lower in E2, consistent with other locations near and within Sanctuary Lakes. The results indicates that higher concentrations of PFAS are potentially being added to Sanctuary Lakes when water is periodically pumped from Skeleton Creek into Sanctuary Lakes to maintain salinities and water levels as outlined above.

#### 8.2.4.6 Skeleton Creek Upstream (Background Monitoring Point)

Upon review of Table 7-14 and the location of the Off-Site background surface water monitoring point targeting Skeleton Creek Upstream, the following evaluations were made:

- > PFAS concentrations in SW041 indicate a potential decreasing trend with concentrations all below LOR during E2. The flow of water observed at this location was low in E1 and high in E2, and EC and TDS

readings were lower during E2, indicating fresher water was present during sampling. Historically, this location has reported PFAS concentrations an order of magnitude higher than results reported in E1 and E2, which indicates that the contribution of PFAS to Skeleton Creek from upgradient sources may have reduced. The historical concentration range for SW041 was reported as 0.014-0.18 µg/L for PFOS+PFHxS and 0.008-0.16 µg/L for PFOS whereas in E1 the concentration of PFOS+PFHxS decreased to 0.01 µg/L in E1 and below LOR in E2, while the concentration of PFOS was reported below LOR in both E1 and E2. Further monitoring is required to confirm and determine long-term trends.

## 9 Discussion

### 9.1 Conceptual Site Model

Aurecon (2020) developed a CSM for the Site as part of the DSI, which has been reviewed by Cardno considering the new datasets available. The following has been considered:

- > Is there evidence of new PFAS source areas?
- > Is there evidence of new pathways via groundwater or surface water?
- > Is there evidence of new receptors?

#### 9.1.1 New PFAS Source Areas

A small number of first-time detections and new exceedances of assessment criteria in groundwater and surface water have been recorded since the DSI. New maximums and new minimums were both reported during the monitoring period, as well as order of magnitude increases. However, none of these results indicate new PFAS sources.

#### 9.1.2 New Pathways

Although some concentration changes have been observed, these are not considered to indicate new pathways of PFAS transport via groundwater or surface water, and therefore, no new pathways of PFAS transport were identified.

Based on the findings of the 2023 monitoring events, select surface water locations (SW005, SW008, SW042 and SW043) have been observed as ephemeral and are likely to be generally dry, except following sufficient rainfall. This indicates that during periods of limited or no rainfall, there is anticipated to be no migration of PFAS via surface water at these locations. This is not a new pathway, but provides greater understanding of the existing pathway of PFAS transport via surface water at these locations.

#### 9.1.3 New Receptors

No new receptors have been identified.

#### 9.1.4 CSM Revisions

Based on the lack of new PFAS sources, new pathways, or new receptors, no changes to the current CSM are considered required.

### 9.2 Risk Profile

#### 9.2.1 Summary of Risk Profile

The risk profile, as identified in the Detailed Site Investigation (DSI) (Aurecon, 2020), Off-Site ecological risk assessment (Aurecon, 2022) and Human Health Risk Assessment for PFAS (EnRiskS, 2022) is summarised below.

Four potentially elevated risks associated with the following potential scenarios were identified as summarised in the PMAP (Aurecon, 2022b):

- > R01: Consumption of fish and eels from Skeleton Creek.
- > R02: Exposure of terrestrial ecological receptors to On-Site impacted soils.
- > R03: Exposure of terrestrial ecological receptors to Off-Site impacted soils at the Laverton RAAF Swamp.
- > R04: Exposure of ecological receptors in surface water, and exposure of higher order avian and mammalian predators in Skeleton Creek, Laverton RAAF Swamp, the southern ponds of Cheetham Wetlands and Sanctuary Lakes.

The DSI (Aurecon, 2020) concluded that the human health risks to On-Site receptors, under the current exposure conditions, are low and acceptable.

#### 9.2.2 Consideration of Monitoring Results on Risk Profile

Qualitative assessment of PFAS concentrations compared to the DSI generally did not indicate any apparent trends. Some locations reported new maximums, while other locations reported new minimums during the

monitoring period. Given the limited dataset at all locations, plus the potential influence on concentrations, particularly surface water, due to the differences in flow conditions, depth of water and EC and TDS readings between the two events, additional data and further monitoring are required to establish long-term trends. Overall, the increases in concentration at select locations were mostly reported at locations near known source areas, do not indicate new sources or pathways, and are not considered to change the overall risk profile based on the available data.

It is generally considered that the existing monitoring network is sufficient to continue monitoring of source areas to evaluate for potential changes in the risk profile, however there is a data gap with regards to groundwater concentrations downgradient of MW131 in Williams Landing, where potential increasing trends have been reported. This is currently being considered by Defence, and additional wells have been proposed for installation to address this data gap.

### 9.3 Assessment of Current OMP

Cardno assessed the OMP in consideration of the findings of this interpretive report to identify if a review of the OMP is required. As outlined in the PFAS OMP Annual Interpretive Report Guidance (Defence, 2022), the following are triggers which may require an OMP Review:

- > Policy:
  - Internal or external policy changes.
  - Updates to guidance.
- > Regulations or stakeholder considerations:
  - Changes to regulatory requirements.
  - Changes to regulator advice on exposure-minimisation behaviours e.g. precautionary advice.
  - Feedback and information received as a result of community consultation.
- > Site conditions:
  - Changes or refinements to the monitoring network, frequency and parameters.
  - Interpretive analysis presented in the OMIR.
  - Changes to the CSM or risk profile.
  - Significant changes of land use within the Monitoring Area or adjoining land.
  - The impacts of remediation work.
  - The requirements of a post-remediation Site Management Plan.

Based on a review of these factors, an OMP review is not considered to be required at this time.



## 10 Conclusions

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Cardno undertook the March 2023 and July/August 2023 biannual groundwater and surface water monitoring events at RAAF Williams Laverton as part of the PFAS OMP. Results from these events have been assessed against adopted assessment criteria and historical data to address the objectives of the PFAS OMR:

- > To provide a succinct summary of the March 2023 and July/August 2023 monitoring data;
- > To determine trends in the distribution, concentration, and transport of PFAS;
- > To evaluate the current CSM and understanding of risk; and
- > To provide supporting data for the assessment of management actions, where relevant.

The 2023 monitoring and interpretive assessment have met the overall objective of the OMP to assess the changes in the nature and extent of PFAS within the environment, specifically where there is an identified potentially elevated risk to a receptor or a potential future risk to a receptor associated with Defence's historical use of legacy AFFF. While there have been some deviations from the original OMP program as explained in Section 3.2, monitoring has been carried out in general accordance with the OMP and SAQP to the extent possible.

Per the requirements outlined in the PFAS OMP Annual Interpretive Report Guidance (Defence, 2022), quantitative trend analysis of groundwater was not performed as sufficient data are not currently available (defined as equal to or greater than eight data points at one monitoring location). In future, quantitative trend analysis for groundwater will be undertaken when sufficient monitoring events have been completed.

### 10.1 Groundwater

Overall, groundwater concentrations appear to fluctuate over time with no clear trend. While fluctuations have been observed, the majority of groundwater locations reported PFAS concentrations for the 2023 monitoring period within the same order of magnitude as the PFAS concentrations reported in the DSI (Aurecon, 2020).

Findings from the 2023 monitoring period supports the conclusions of the DSI that the highest concentrations of PFAS were generally identified within and adjacent to source areas, and that the soils and sediment within these source areas are continuing to act as a source of PFAS to groundwater (Aurecon, 2020). The highest groundwater PFAS concentrations reported during the 2023 monitoring period were in the vicinity of the Former Wet Testing Area (SA1), the Former GEMS Compound (SA4) and the Off-Site Former Primary Fire Training Area, now in the western portion of Williams Landing. Concentrations in two wells (MW130 and MW131) monitoring the Off-Site Former Primary Fire Training Area have increased by an order of magnitude from the concentrations reported during the DSI. There is currently a data gap downgradient of these locations as there are no wells located between these wells and Skeleton Creek. Additional wells have been proposed for installation to address this data gap.

Overall, while fluctuations in concentration were observed, at this stage these changes are not considered to affect the nature, extent, or current understanding of PFAS within the MA. Continued ongoing monitoring will assist with determining any long-term trends.

### 10.2 Surface Water

Overall, surface water concentrations appear to fluctuate over time with no clear trend. While fluctuations have been observed, the majority of surface water locations reported PFAS concentrations for the 2023 monitoring period within the same order of magnitude as historical data reported during the DSI (Aurecon, 2020).

A number of surface water locations reported both new maximums and new minimums during the 2023 monitoring period, with the majority of new maximums reported in E1, and new minimums reported in E2. This may be influenced by the volume of water present at the sampling location at the time of sampling, with a greater water body depth generally noted at most locations during E2. Additionally, fresher water being present at the time of sampling during E2, as indicated by the EC and TDS readings between events, as readings were lower during E2 at the majority of locations. There is insufficient data to establish trends with regards to whether these differences are related to seasonal influences, or differences in rainfall preceding the events, but further monitoring will assist with evaluating this and determining any long-term trends.

Findings from the 2023 monitoring period supports the conclusions of the DSI that the highest concentrations of PFAS were generally identified within and adjacent to source areas (Aurecon, 2020). The highest PFAS concentrations for the 2023 monitoring period were reported at SW034, targeting drainage from the Former Wet Testing Area (SA1). The point of discharge in the southwestern portion of the Site (SW043) has continued to report PFAS concentrations below adopted ecological and recreational criteria throughout the 2023 monitoring period.

Three locations downgradient of the Site within Skeleton Creek (SW020, SW073 and SW078) reported concentrations above adopted ecological criteria, but below recreational criteria, consistent with the findings of the DSI (Aurecon, 2020). The remaining locations within Skeleton Creek and within Sanctuary Lakes reported results below adopted ecological and recreational criteria.

Overall, while fluctuations in concentration were observed, at this stage these changes are not considered to affect the nature, extent, or current understanding of PFAS within the MA. Continued ongoing monitoring will assist with determining any long-term trends.

### 10.3 Conceptual Site Model & Risk Profile

The Conceptual Site Model (CSM) was reviewed for any changes in potential exposure pathways for human health and ecological receptors compared to those identified during the DSI (Aurecon, 2020). Although some concentration changes were observed over the monitoring period, no new PFAS sources, new pathways, or new receptors were identified, and therefore no changes to the current CSM were required.

The 2023 monitoring results were generally within the same order of magnitude as historical data for all media tested. However, there were a few localised first-time detections/new exceedances of assessment criteria, but these do not indicate new sources or pathways as they were mostly reported at locations near known source areas and are not considered to change the overall risk profile based on the available data.

As only two monitoring events have been completed as part of the OMP, in different seasons, trends are difficult to infer and any resultant correlation factor would be of a low confidence. Further monitoring as part of the OMP is required to determine long-term trends and to assess for any potential future changes to the current risk profile.

# 11 References

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APPENDIX

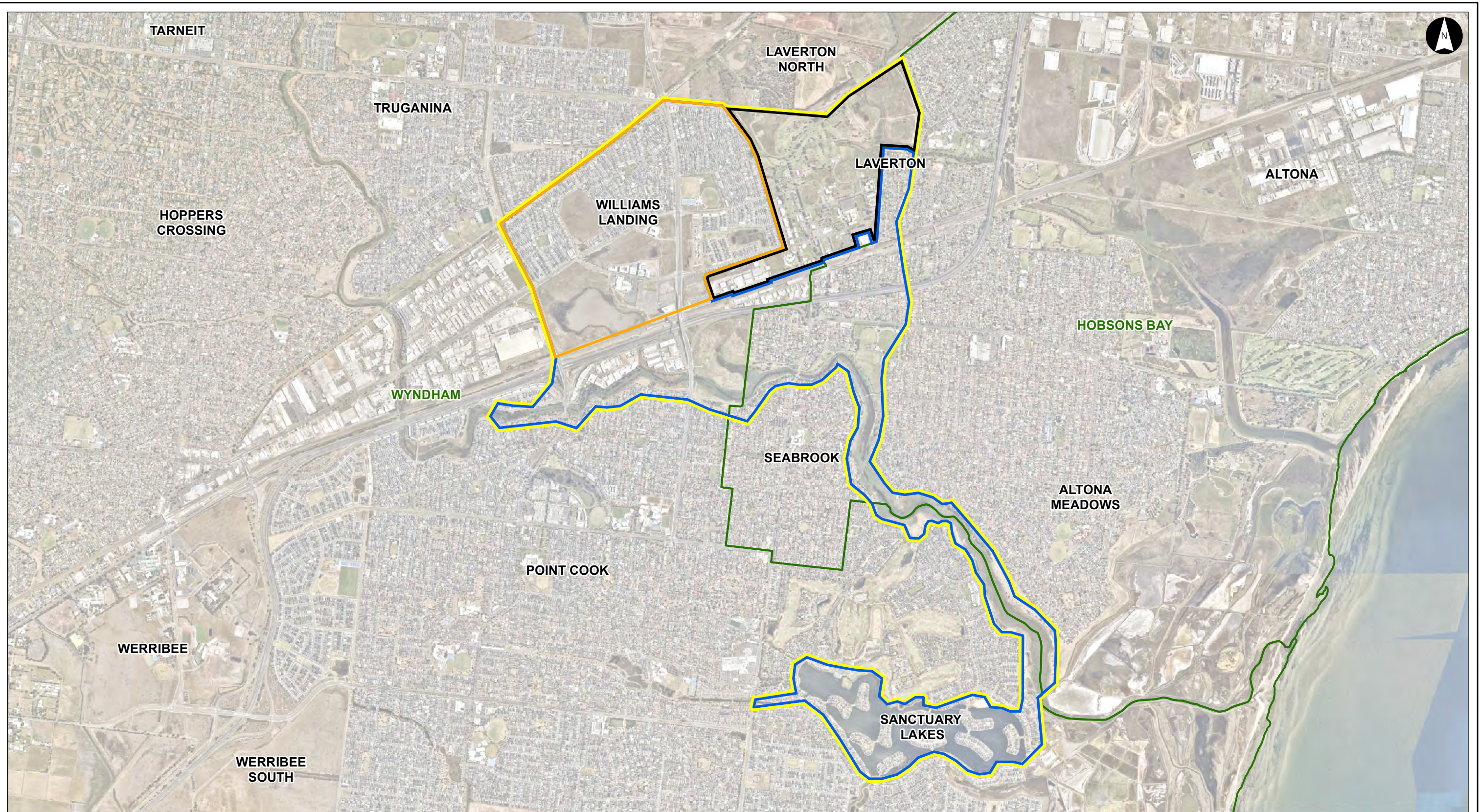
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### Site Locality Plan

RAAF Williams Laverton  
OMP Factual Report

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Drawn By: AL  
Figure No: 1 | Rev: 3  
Date: 2024-04-09



### Legend

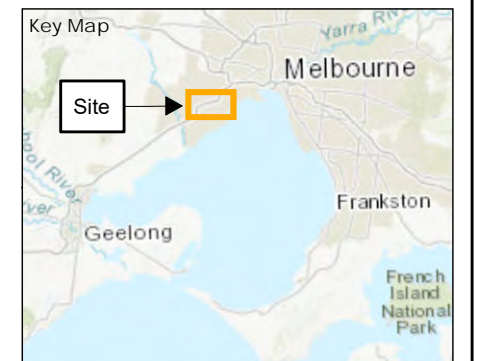
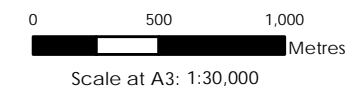
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- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- LGA Boundary

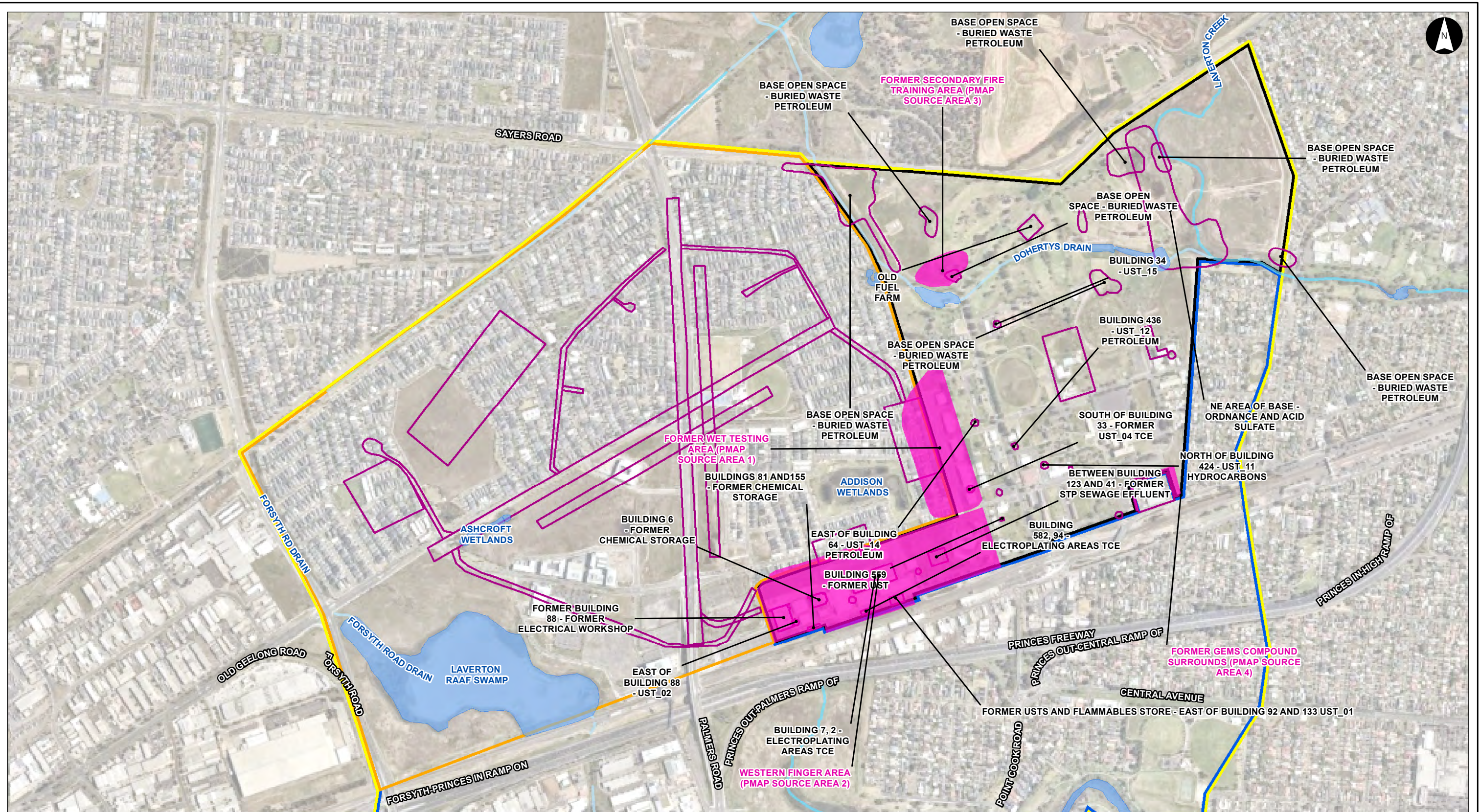
### Notes:

1. Coordinate System: GDA 1994 MGA Zone 55

### References:

1. Aerial Imagery Supplied by Nearmap (January, 2023)
2. LGA and Road Data Supplied by DELWP





**Site Features:  
Key PFAS source Areas**

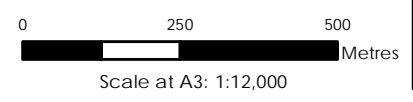
RAAF Williams Laverton  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0329-SiteFeatures\_L  
 Drawn By: AL  
 Figure No: 2 | Rev: 1  
 Date: 2023-07-11

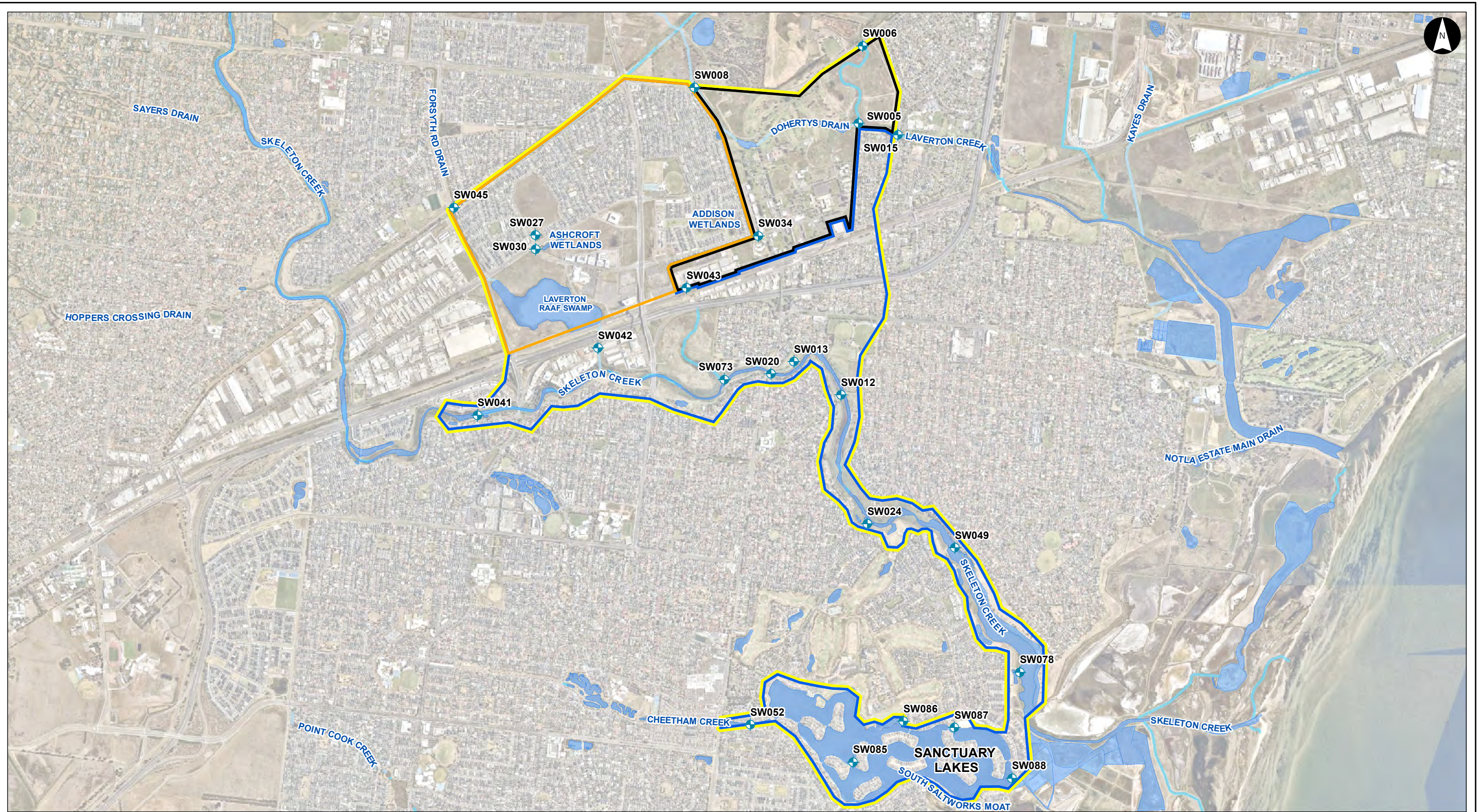
**Legend**

- |  |  |  |   |
|--|--|--|---|
|  | Management Area  |  | Drainage  |
|  | On-Site Management and Monitoring Area                       |  | Watercourse   |
|  | Off-Site Monitoring Area                                     |  | Potential historic AFFF use, storage or disposal, On-Base |
|  | Former Extent of RAAF Williams (Laverton) - Williams Landing |  | Historic AFFF use, storage or disposal                    |
|  | Wetlands/ Waterbodies  |  |   |

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





### Surface Water Sampling Locations

RAAF Williams Laverton  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0286-SW\_SampleLocations\_L  
 Drawn By: AL  
 Figure No: 3 | Rev: 4  
 Date: 2024-04-09

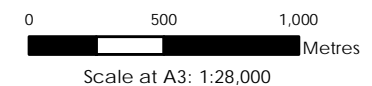


### Legend

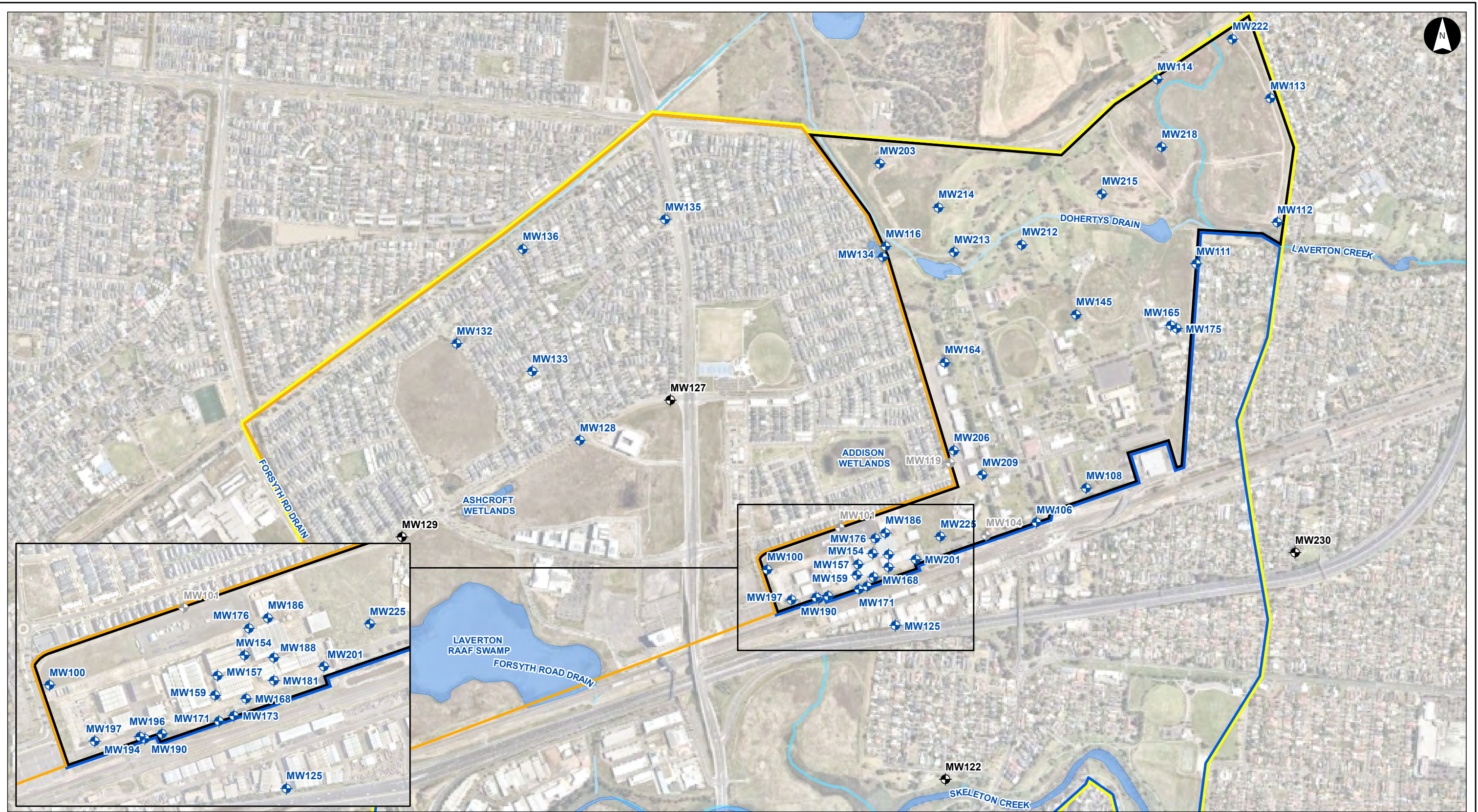
- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- ◆ Surface Water Sample Location

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP







### Groundwater Gauge Only Locations

RAAF Williams Laverton  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0287-GW\_GaugingLocations\_L  
 Drawn By: AL  
 Figure No: 4A | Rev: 4  
 Date: 2024-04-09

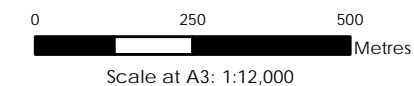


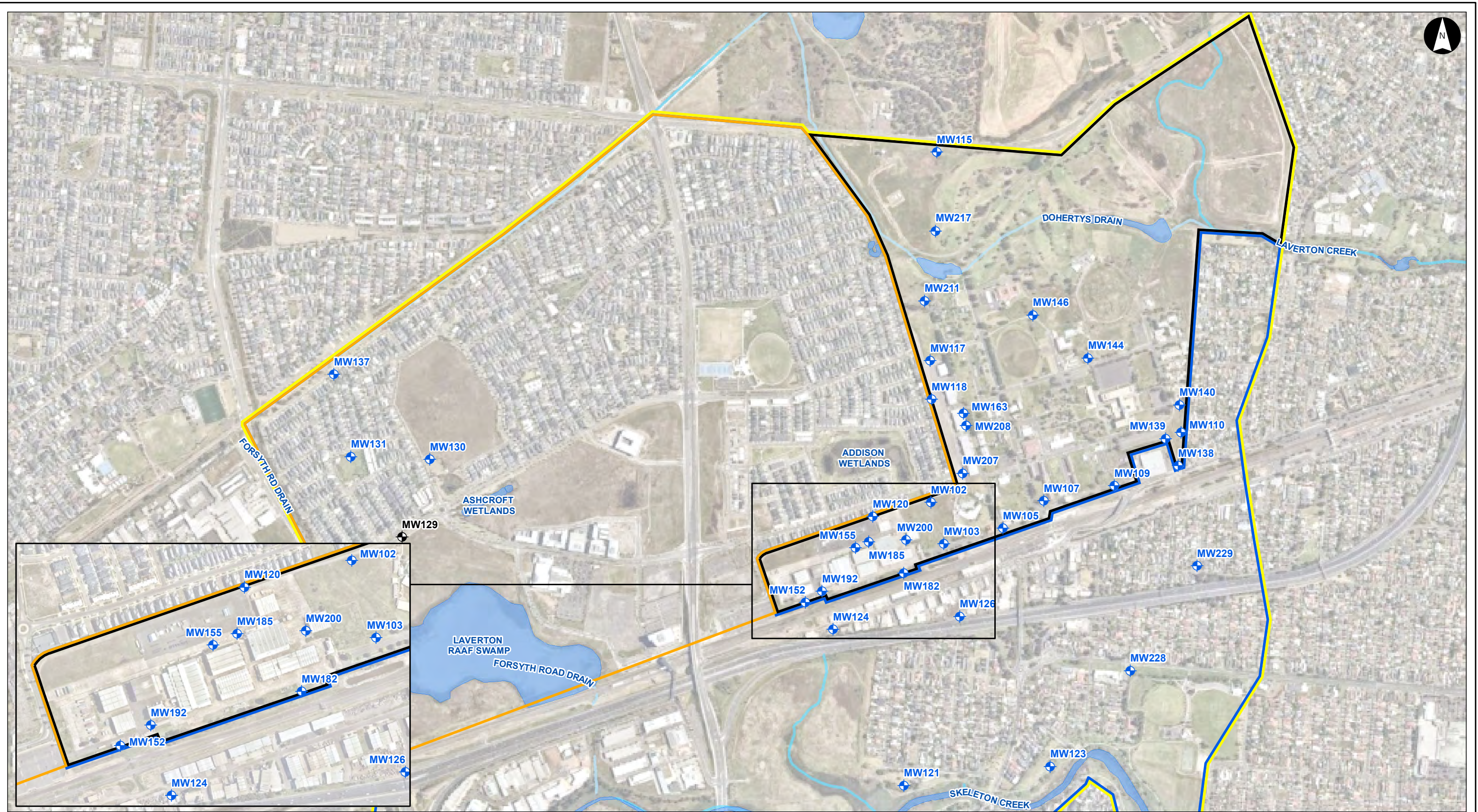
### Legend

- |  |                                  |   |
|--|----------------------------------|---|
| Management Area  | Drainage                         | Groundwater Gauge Only Locations - Destroyed            |
| On-Site Management and Monitoring Area                       | Watercourse                      | Groundwater Gauge Only Locations - Inaccessible/Damaged |
| Off-Site Monitoring Area                                     | Groundwater Gauge Only Locations |   |
| Former Extent of RAAF Williams (Laverton) - Williams Landing |                                  |   |
| Wetlands/ Waterbodies  |                                  |   |

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





### Groundwater Sampling Locations

RAAF Williams Laverton  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0288-GW\_SamplingLocations\_L  
 Drawn By: AL  
 Figure No: 4B | Rev: 4  
 Date: 2024-04-09

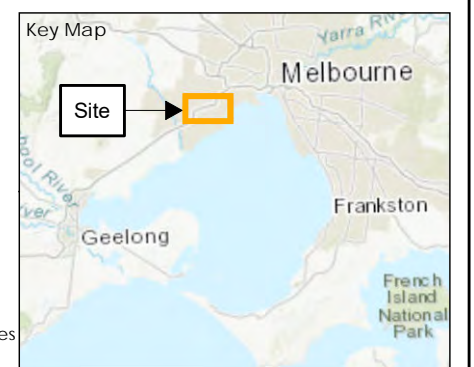
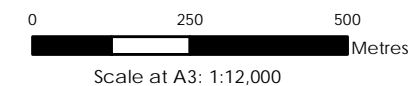


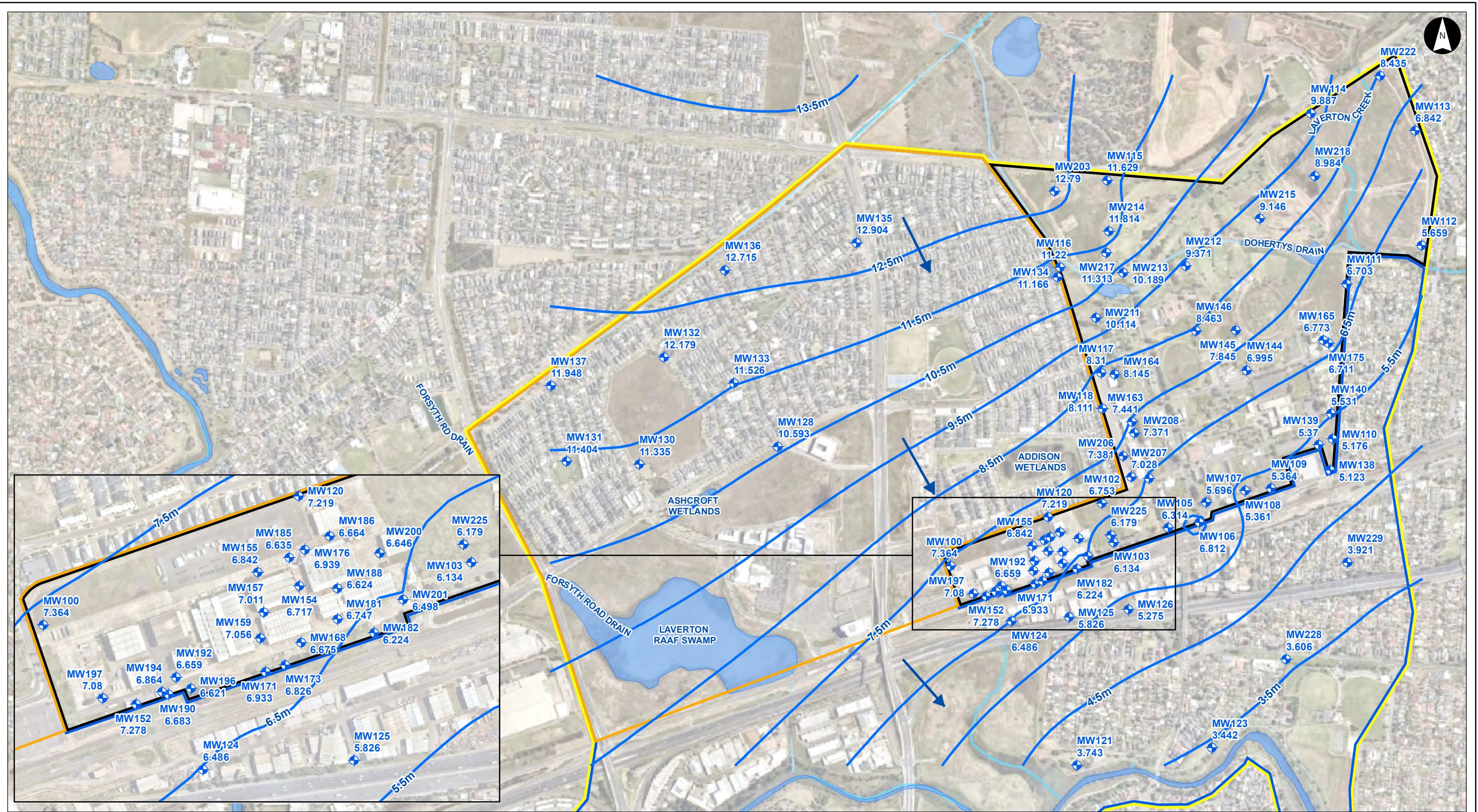
### Legend

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- ◆ Groundwater Sample Location
- ◆ Groundwater Sample Location - Destroyed

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





**Groundwater Elevation Contours  
- March, 2023**

RAAF Williams Laverton

Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0324-GW\_Contours\_E1\_L  
 Drawn By: AL  
 Figure No: 5A | Rev: 1  
 Date: 2024-02-23

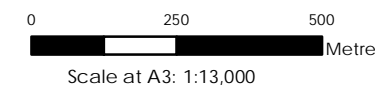


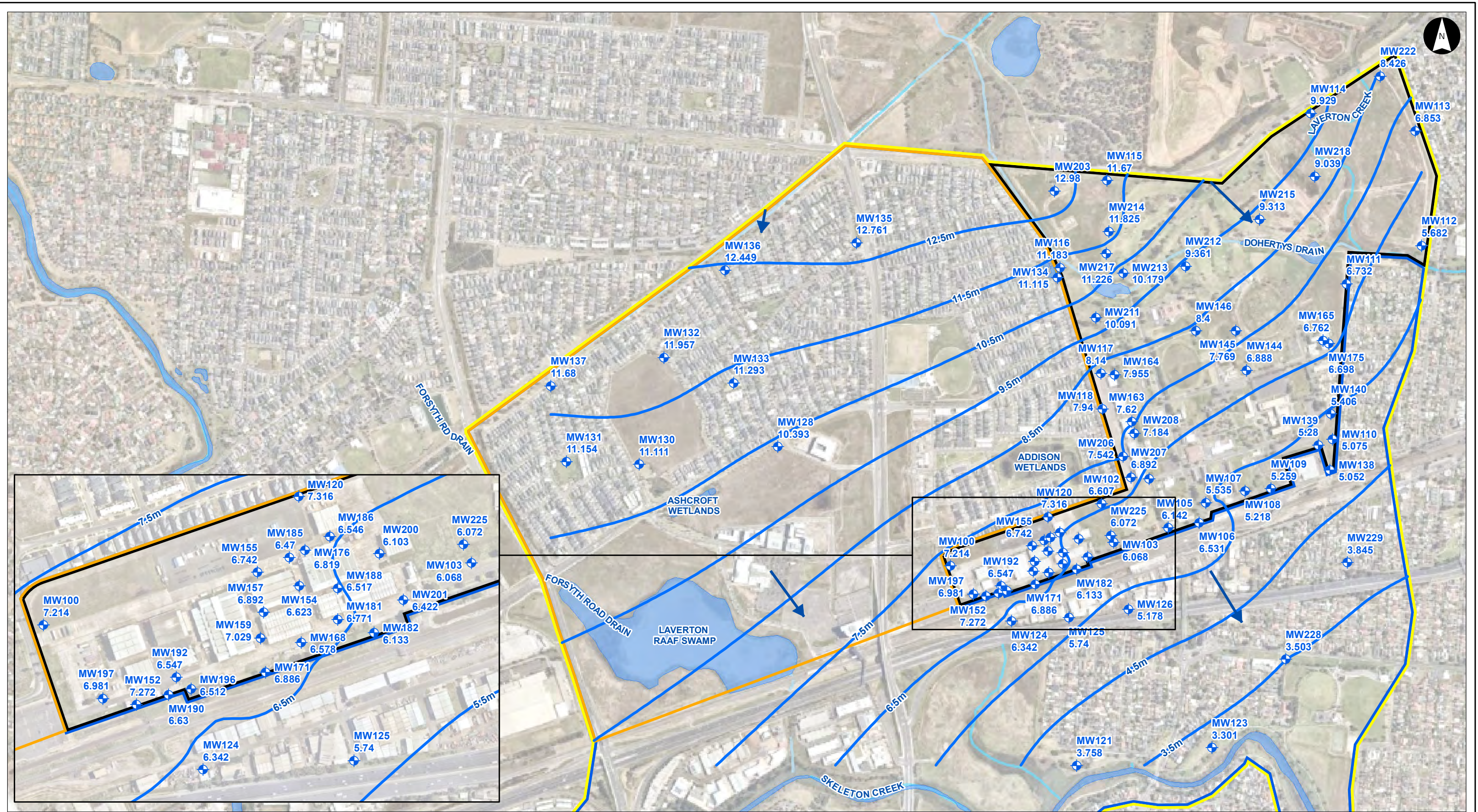
**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- ➔ Groundwater Flow Direction
- Groundwater Elevation Contour (mAHd)
- ⊕ Groundwater Monitoring Well

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





**Groundwater Elevation Contours  
- August, 2023**

RAAF Williams Laverton

Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0371-GW\_Contours\_E2\_L  
 Drawn By: AL  
 Figure No: 5B | Rev: 2  
 Date: 2024-02-23

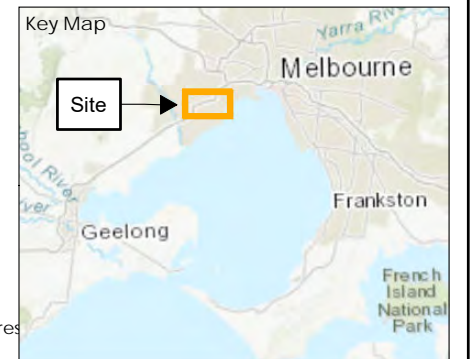
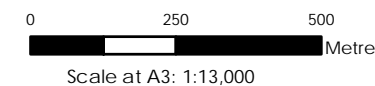


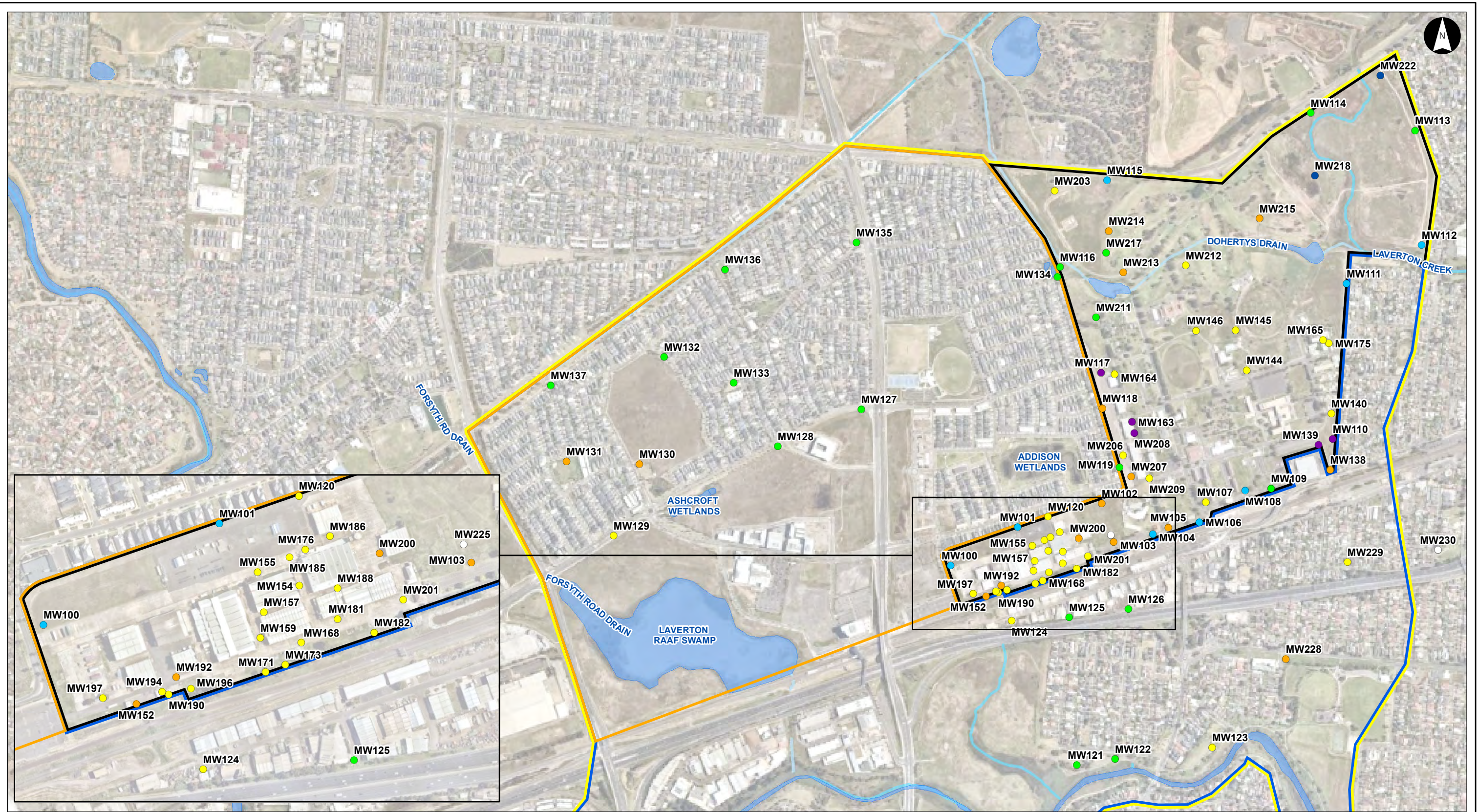
**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- Groundwater Flow Direction
- Groundwater Elevation Contour (mAH)
- + Groundwater Monitoring Well

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





**PFOS+PFHxS Concentrations in Groundwater (Historical)**

RAAF Williams Laverton

Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0407-SumofPFHxS&PFOS\_GW\_Hist\_L  
 Drawn By: AL  
 Figure No: 6A | Rev: 2  
 Date: 2024-02-23



**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing

- Drainage
- Watercourse

PFOS+PFHxS Concentration in Groundwater ( $\mu\text{g/L}$ )

- Below LOR
- LOR to 0.07
- 0.07 to 0.7

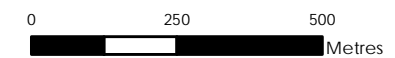
- 0.7 to 7
- 7 to 70
- >70
- Not Sampled

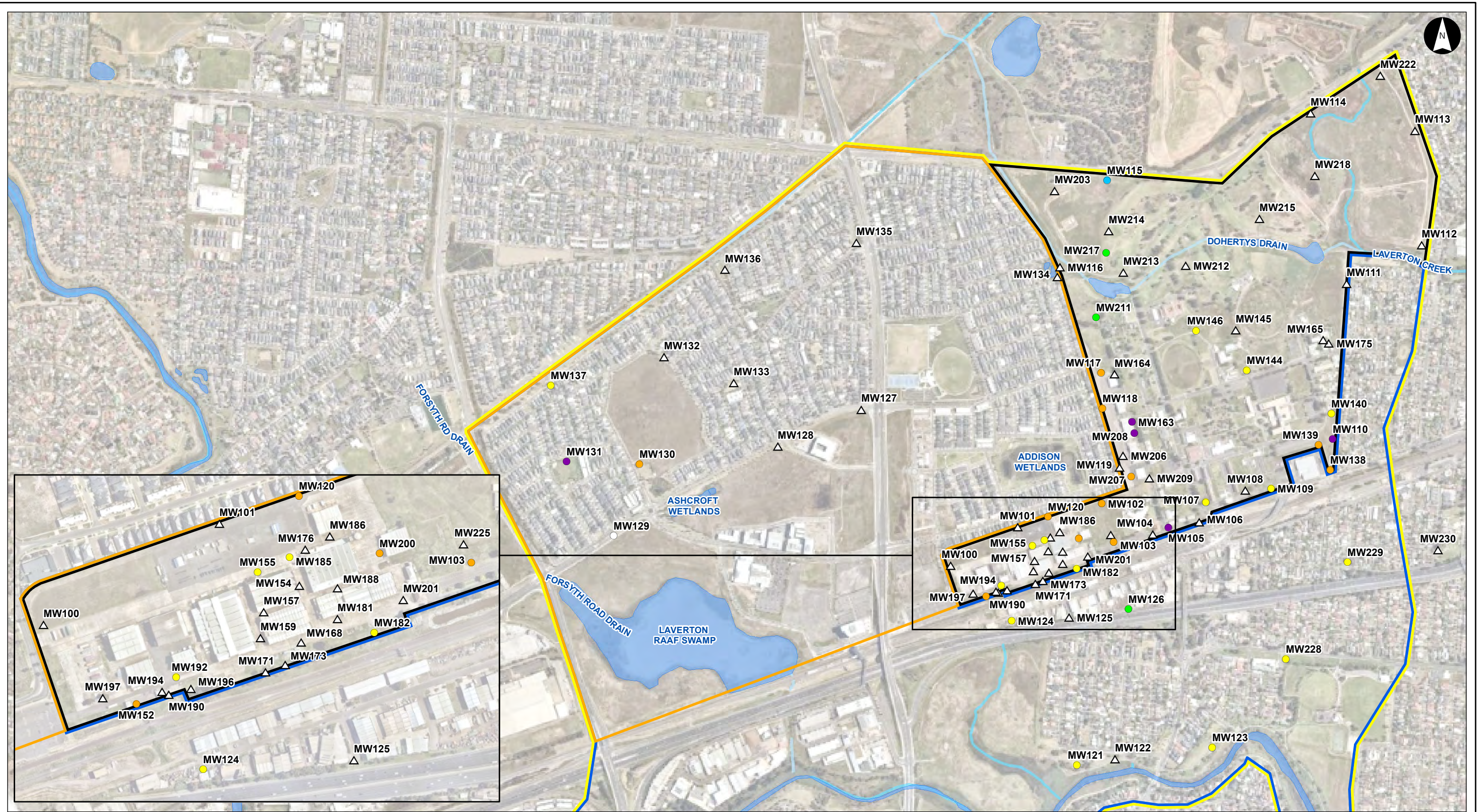
**Notes:**

1. Coordinate System: GDA 1994 MGA Zone 55

**References:**

1. Aerial Imagery Supplied by Nearmap (January, 2023)
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





**PFOS+PFHxS Concentrations in Groundwater (March 2023)**

RAAF Williams Laverton

Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0408-SumofPFHxS&PFOS\_GW\_Mar23\_L  
 Drawn By: AL  
 Figure No: 6B | Rev: 2  
 Date: 2024-02-23



**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing

- Drainage
- Watercourse

PFOS+PFHxS Concentration in Groundwater ( $\mu\text{g/L}$ )

- Below LOR
- LOR to 0.07
- 0.07 to 0.7

- 0.7 to 7
- 7 to 70
- >70

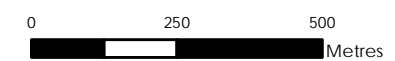
- Not Sampled
- △ Gauged Only

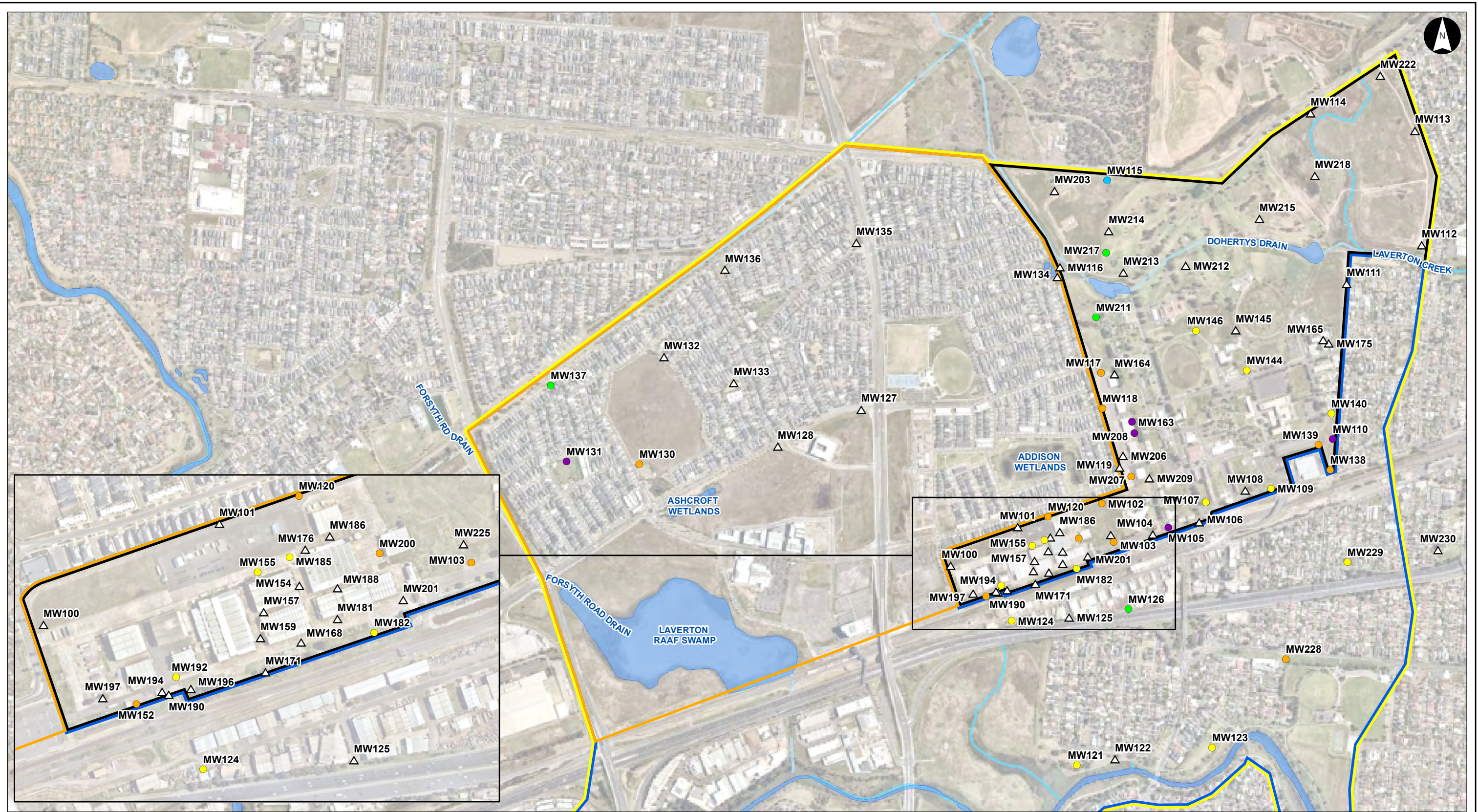
**Notes:**

1. Coordinate System: GDA 1994 MGA Zone 55

**References:**

1. Aerial Imagery Supplied by Nearmap (January, 2023)
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





**PFOS+PFHxS Concentrations in Groundwater (August 2023)**

RAAF Williams Laverton

Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0409-SumofPFHxS&PFOS\_GW\_Aug23\_L  
 Drawn By: AL  
 Figure No: 6C | Rev: 2  
 Date: 2024-02-23



**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing

- Drainage
- Watercourse

PFOS+PFHxS Concentration in Groundwater ( $\mu\text{g/L}$ )

- Below LOR
- LOR to 0.07
- 0.07 to 0.7

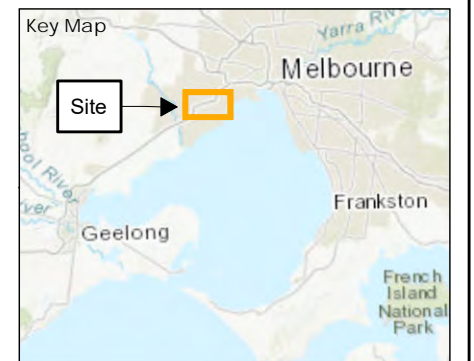
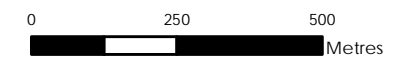
- 0.7 to 7
- 7 to 70
- >70
- Not Sampled
- △ Gauged Only

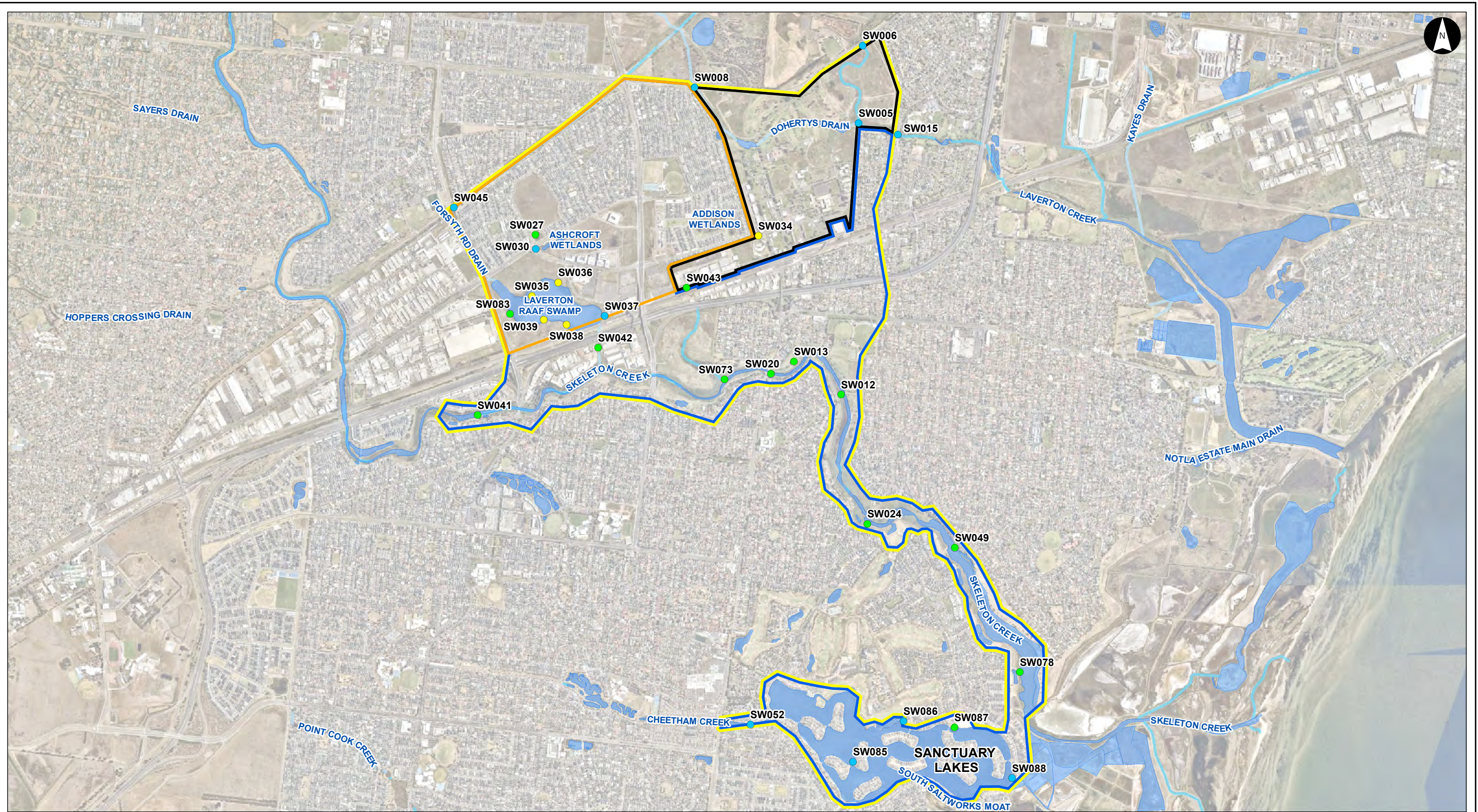
**Notes:**

1. Coordinate System: GDA 1994 MGA Zone 55

**References:**

1. Aerial Imagery Supplied by Nearmap (January, 2023)
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP

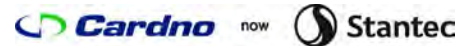




**PFOS+PFHxS Concentrations in Surface Water (Historical)**

RAAF Williams Laverton

Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0410-SumofPFHxS&PFOS\_SW\_Hist\_L  
 Drawn By: AL  
 Figure No: 7A | Rev: 2  
 Date: 2024-02-23



**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies

- Drainage
- Watercourse

**PFOS+PFHxS Concentration in Surface Water (µg/L)**

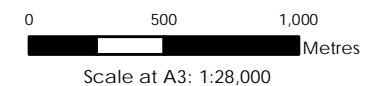
- Below LOR
- LOR to 0.07
- 0.07 to 0.7
- 0.7 to 7
- 7 to 70
- >70
- Not Sampled

**Notes:**

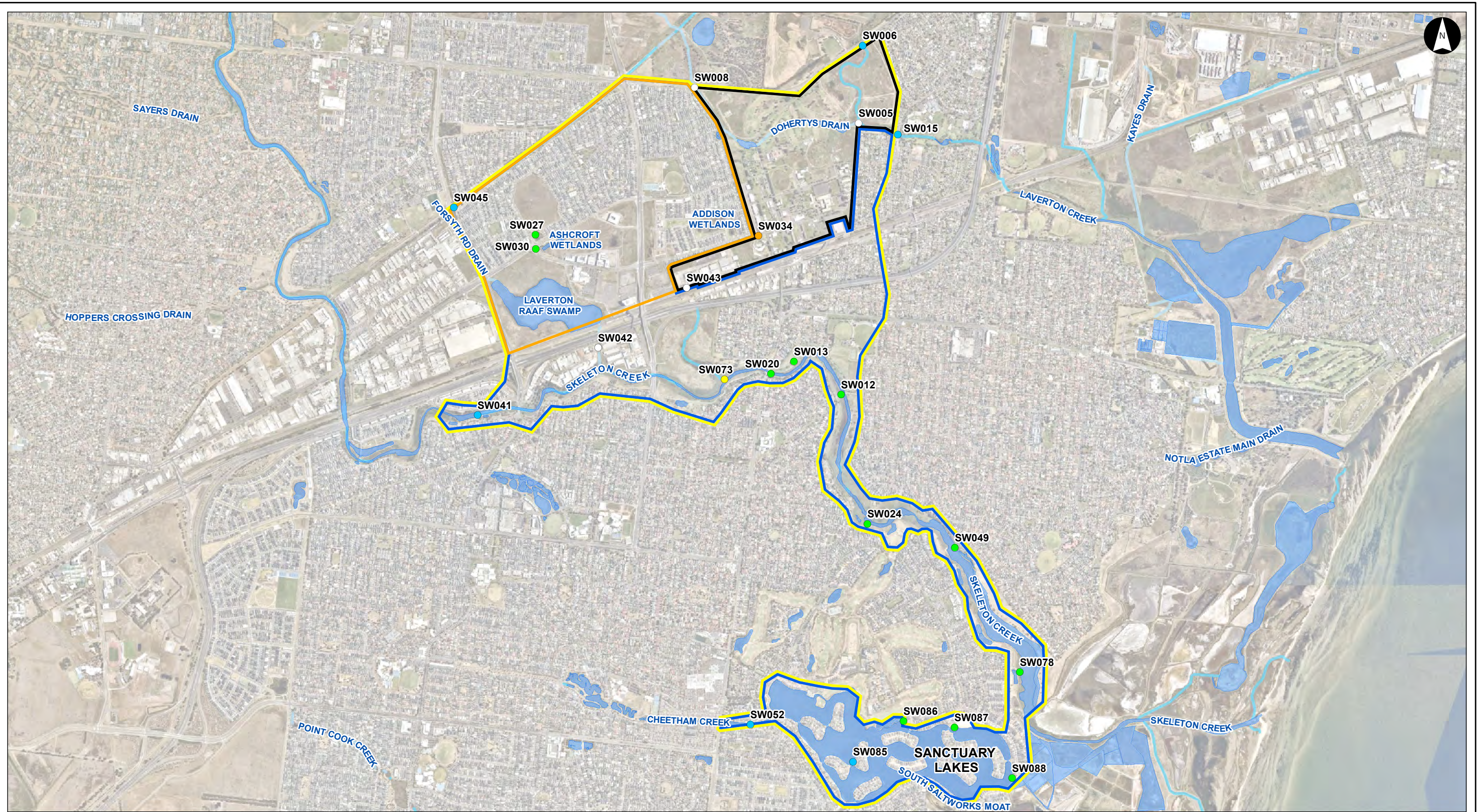
1. Coordinate System: GDA 1994 MGA Zone 55

**References:**

1. Aerial Imagery Supplied by Nearmap (January, 2023)
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP







**PFOS+PFHxS Concentrations in Surface Water (March 2023)**

RAAF Williams Laverton

Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0411-SumofPFHxS&PFOS\_SW\_Mar23\_L  
 Drawn By: AL  
 Figure No: 7B | Rev: 2  
 Date: 2024-02-23



**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies

- Drainage
- Watercourse

**PFOS+PFHxS Concentration in Surface Water (µg/L)**

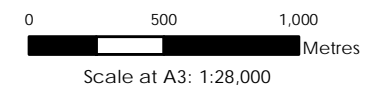
- Below LOR
- LOR to 0.07
- 0.07 to 0.7
- 0.7 to 7
- 7 to 70
- >70
- Not Sampled

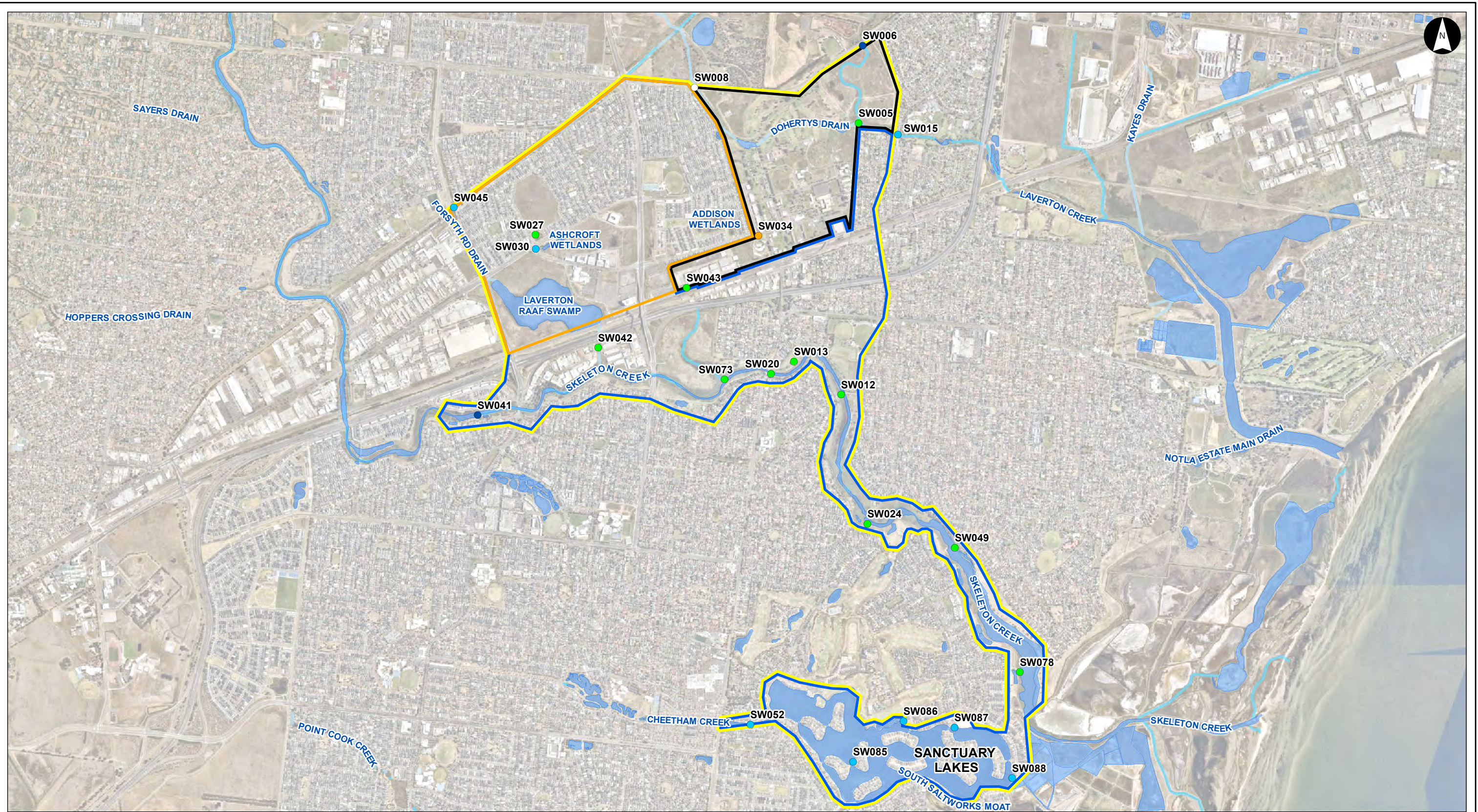
**Notes:**

1. Coordinate System: GDA 1994 MGA Zone 55

**References:**

1. Aerial Imagery Supplied by Nearmap (January, 2023)
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP

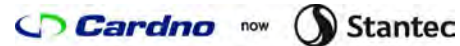




**PFOS+PFHxS Concentrations in Surface Water (August 2023)**

RAAF Williams Laverton

Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0412-SumofPFHxS&PFOS\_SW\_Aug23\_L  
 Drawn By: AL  
 Figure No: 7C | Rev: 2  
 Date: 2024-02-23



**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies

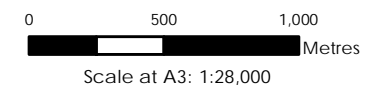
- Drainage
- Watercourse

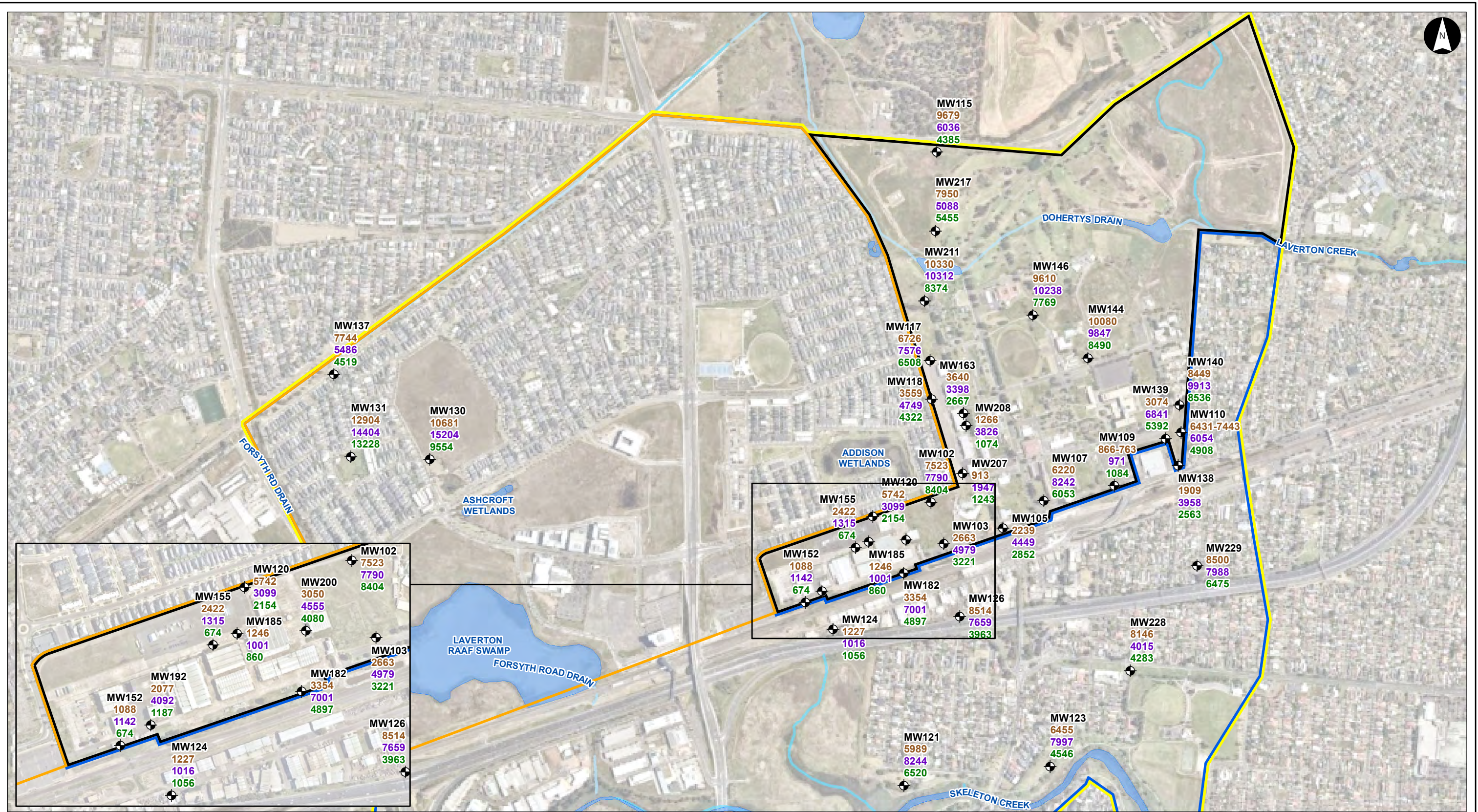
PFOS+PFHxS Concentration in Surface Water ( $\mu\text{g/L}$ )

- Below LOR
- LOR to 0.07
- 0.07 to 0.7
- 0.7 to 7
- 7 to 70
- >70
- Not Sampled

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





### Range of Electrical Conductivity Readings in Groundwater Wells

RAAF Williams Laverton  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0442-GW\_EC\_L  
 Drawn By: AL  
 Figure No: 8 | Rev: 1  
 Date: 2024-04-10

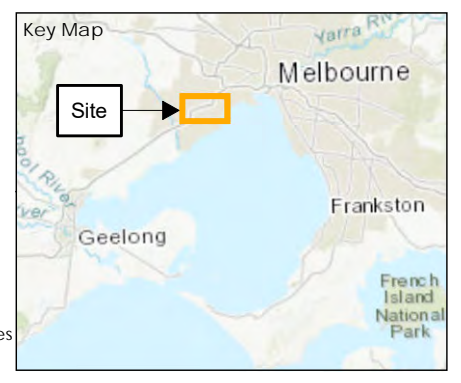
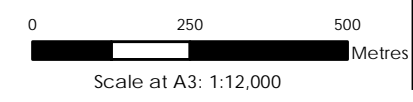


### Legend

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- Groundwater Sample Location
- 1246 DSI EC ( $\mu\text{S}/\text{cm}$ )
- 1001 Event 1 EC ( $\mu\text{S}/\text{cm}$ )
- 860 Event 2 EC ( $\mu\text{S}/\text{cm}$ )

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP



APPENDIX

# B

TABLES



now



| Event | Location | Monitoring Well ID | Alternative ID | Monitoring Well Status | Date       | Easting   | Northing   | Top of Screen Depth | Bottom of Screen Depth | Top of Well Casing Elevation (mAHD) | Depth to Base of Monitoring Well (mbtoc) | Depth to Groundwater (mbtoc) | Corrected Water Elevation (mAHD) | Top of Hydrasleeve (mbtoc) | Qualitative Turbidity | Observations  |
|-------|----------|--------------------|----------------|------------------------|------------|-----------|------------|---------------------|------------------------|-------------------------------------|--|------------------------------|----------------------------------|----------------------------|-----------------------|---|
| E1    | Onsite   | MW100              | -              | Gauge Only             | 14/03/2023 | 302155.42 | 5806515.51 | 4.50                | 10.5                   | 12.640                              | 10.810                                   | 5.276                        | 7.364                            | -                          | -                     | -   |
| E2    | Onsite   | MW100              | -              | Gauge Only             | 31/07/2023 | 302155.42 | 5806515.51 | 4.50                | 10.5                   | 12.640                              | 10.810                                   | 5.426                        | 7.214                            | -                          | -                     | -   |
| E1    | Onsite   | MW101              | -              | Gauge Only             | 14/03/2023 | 302391.57 | 5806651.44 | 6.00                | 10.00                  | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, rusted shut   |
| E2    | Onsite   | MW101              | -              | Gauge Only             | 31/07/2023 | 302391.57 | 5806651.44 | 6.00                | 10.00                  | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, rusted shut   |
| E1    | Onsite   | MW102              | -              | Gauge and Sample       | 14/03/2023 | 302687.38 | 5806734.66 | 9.20                | 10.20                  | 10.986                              | 10.685                                   | 4.233                        | 6.753                            | 9.685                      | Low                   | Clear water colour  |
| E2    | Onsite   | MW102              | -              | Gauge and Sample       | 31/07/2023 | 302687.38 | 5806734.66 | 9.20                | 10.20                  | 10.986                              | 11.800                                   | 4.379                        | 6.607                            | 10.800                     | Low                   | Clear water colour  |
| E1    | Onsite   | MW103              | -              | Gauge and Sample       | 14/03/2023 | 302729.82 | 5806598.99 | 4.70                | 6.70                   | 10.785                              | 6.782                                    | 4.651                        | 6.134                            | 5.782                      | Low                   | Cloudy water colour. 10% turbidity  |
| E2    | Onsite   | MW103              | -              | Gauge and Sample       | 31/07/2023 | 302729.82 | 5806598.99 | 4.70                | 6.70                   | 10.785                              | 6.840                                    | 4.717                        | 6.068                            | 5.840                      | Low                   | Clear, slightly cloudy, no odour or sheen   |
| E1    | Onsite   | MW104              | -              | Gauge Only             | 14/03/2023 | 302867.02 | 5806626.67 | 4.50                | 6.50                   | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, rusted shut   |
| E2    | Onsite   | MW104              | -              | Gauge Only             | 31/07/2023 | 302867.02 | 5806626.67 | 4.50                | 6.50                   | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, rusted shut   |
| E1    | Onsite   | MW105              | -              | Gauge and Sample       | 14/03/2023 | 302921.77 | 5806649.94 | 3.50                | 6.50                   | 10.477                              | 7.096                                    | 4.163                        | 6.314                            | 6.096                      | Medium                | Cloudy water, 10% turbidity. Potential sulfuric odour, black suspended particles  |
| E2    | Onsite   | MW105              | -              | Gauge and Sample       | 31/07/2023 | 302921.77 | 5806649.94 | 3.50                | 6.50                   | 10.477                              | 7.790                                    | 4.335                        | 6.142                            | 6.790                      | Low                   | Clear, no odour or sheen  |
| E1    | Onsite   | MW106              | -              | Gauge Only             | 14/03/2023 | 303030.84 | 5806668.96 | 3.00                | 6.00                   | 10.637                              | 6.398                                    | 3.825                        | 6.812                            | -                          | -                     | -   |
| E2    | Onsite   | MW106              | -              | Gauge Only             | 31/07/2023 | 303030.84 | 5806668.96 | 3.00                | 6.00                   | 10.637                              | 6.490                                    | 4.106                        | 6.531                            | -                          | -                     | -   |
| E1    | Onsite   | MW107              | -              | Gauge and Sample       | 14/03/2023 | 303054.13 | 5806738.37 | 4.00                | 8.00                   | 11.628                              | 8.584                                    | 5.932                        | 5.696                            | 7.584                      | Low                   | Clear water colour, 5% turbidity  |
| E2    | Onsite   | MW107              | -              | Gauge and Sample       | 31/07/2023 | 303054.13 | 5806738.37 | 4.00                | 8.00                   | 11.628                              | 8.660                                    | 6.093                        | 5.535                            | 7.660                      | Low                   | No odour or sheen. Minor grey suspended solids present at base of sleeve.   |
| E1    | Onsite   | MW108              | -              | Gauge Only             | 14/03/2023 | 303192.38 | 5806779.71 | 4.40                | 7.40                   | 10.858                              | 8.163                                    | 5.497                        | 5.361                            | -                          | -                     | -   |
| E2    | Onsite   | MW108              | -              | Gauge Only             | 31/07/2023 | 303192.38 | 5806779.71 | 4.40                | 7.40                   | 10.858                              | 8.180                                    | 5.640                        | 5.218                            | -                          | -                     | -   |
| E1    | Onsite   | MW109              | -              | Gauge and Sample       | 14/03/2023 | 303283.85 | 5806787.69 | 4.00                | 7.00                   | 11.054                              | 7.792                                    | 5.690                        | 5.364                            | 6.792                      | Low                   | Clear water colour. 5% turbidity  |
| E2    | Onsite   | MW109              | -              | Gauge and Sample       | 31/07/2023 | 303283.85 | 5806787.69 | 4.00                | 7.00                   | 11.054                              | 7.790                                    | 5.795                        | 5.259                            | 6.790                      | Medium                | Pale brown, no nuisance organisms or vegetation, no odour or sheen. Observed orange brown suspended solids in bottom quarter of sleeve. |
| E1    | Onsite   | MW110              | -              | Gauge and Sample       | 15/03/2023 | 303500.83 | 5806961.55 | 4.00                | 9.00                   | 11.410                              | 9.945                                    | 6.234                        | 5.176                            | 8.945                      | Low                   | Clear water colour. 5% turbidity  |
| E2    | Onsite   | MW110              | -              | Gauge and Sample       | 31/07/2023 | 303500.83 | 5806961.55 | 4.00                | 9.00                   | 11.410                              | 10.000                                   | 6.335                        | 5.075                            | 9.000                      | Low                   | Clear, no odour or sheen  |
| E1    | Onsite   | MW111              | -              | Gauge Only             | 15/03/2023 | 303549.68 | 5807508.41 | 4.00                | 7.00                   | 11.428                              | 7.807                                    | 4.725                        | 6.703                            | -                          | -                     | -   |
| E2    | Onsite   | MW111              | -              | Gauge Only             | 31/07/2023 | 303549.68 | 5807508.41 | 4.00                | 7.00                   | 11.428                              | 7.750                                    | 4.696                        | 6.732                            | -                          | -                     | -   |
| E1    | Onsite   | MW112              | -              | Gauge Only             | 15/03/2023 | 303813.43 | 5807643.46 | 6.00                | 9.00                   | 9.201                               | 8.690                                    | 3.542                        | 5.659                            | -                          | -                     | -   |
| E2    | Onsite   | MW112              | -              | Gauge Only             | 1/08/2023  | 303813.43 | 5807643.46 | 6.00                | 9.00                   | 9.201                               | 8.620                                    | 3.519                        | 5.682                            | -                          | -                     | -   |
| E1    | Onsite   | MW113              | -              | Gauge Only             | 15/03/2023 | 303790.74 | 5808047.06 | 7.00                | 10.00                  | 13.458                              | 10.350                                   | 6.616                        | 6.842                            | -                          | -                     | -   |
| E2    | Onsite   | MW113              | -              | Gauge Only             | 1/08/2023  | 303790.74 | 5808047.06 | 7.00                | 10.00                  | 13.458                              | 10.370                                   | 6.605                        | 6.853                            | -                          | -                     | -   |
| E1    | Onsite   | MW114              | -              | Gauge Only             | 15/03/2023 | 303423.22 | 5808108.35 | 5.20                | 8.20                   | 11.779                              | -  | 1.892                        | 9.887                            | -                          | -                     | -   |
| E2    | Onsite   | MW114              | -              | Gauge Only             | 1/08/2023  | 303423.22 | 5808108.35 | 5.20                | 8.20                   | 11.779                              | 8.820                                    | 1.850                        | 9.929                            | -                          | -                     | -   |
| E1    | Onsite   | MW115              | -              | Gauge and Sample       | 14/03/2023 | 302706.34 | 5807872.56 | 9.00                | 15.00                  | 21.118                              | 15.810                                   | 9.489                        | 11.629                           | 14.810                     | Low                   | Clear water colour. 5% turbidity  |
| E2    | Onsite   | MW115              | -              | Gauge and Sample       | 31/07/2023 | 302706.34 | 5807872.56 | 9.00                | 15.00                  | 21.118                              | 15.600                                   | 9.448                        | 11.670                           | 14.600                     | Low                   | Clear, no odour or sheen  |
| E1    | Onsite   | MW116              | -              | Gauge Only             | 14/03/2023 | 302540.47 | 5807566.23 | 6.50                | 12.50                  | 14.862                              | 12.670                                   | 3.642                        | 11.220                           | -                          | -                     | -   |
| E2    | Onsite   | MW116              | -              | Gauge Only             | 31/07/2023 | 302540.47 | 5807566.23 | 6.50                | 12.50                  | 14.862                              | 12.670                                   | 3.679                        | 11.183                           | -                          | -                     | -   |
| E1    | Onsite   | MW117              | -              | Gauge and Sample       | 14/03/2023 | 302685.11 | 5807194.17 | 4.00                | 9.00                   | 14.118                              | 9.710                                    | 5.808                        | 8.310                            | 8.710                      | Low                   | Clear water colour  |
| E2    | Onsite   | MW117              | -              | Gauge and Sample       | 31/07/2023 | 302685.11 | 5807194.17 | 4.00                | 9.00                   | 14.118                              | 9.650                                    | 5.978                        | 8.140                            | 8.650                      | Medium                | Cloudy, brown, no odour or sheen  |
| E1    | Onsite   | MW118              | -              | Gauge and Sample       | 14/03/2023 | 302689.62 | 5807069.21 | 4.50                | 7.50                   | 13.073                              | 7.620                                    | 4.962                        | 8.111                            | 6.620                      | Low                   | Clear water colour  |
| E2    | Onsite   | MW118              | -              | Gauge and Sample       | 31/07/2023 | 302689.62 | 5807069.21 | 4.50                | 7.50                   | 13.073                              | 7.570                                    | 5.133                        | 7.940                            | 6.570                      | Low                   | Clear, no odour or sheen  |
| E1    | Onsite   | MW119              | -              | Gauge Only             | 14/03/2023 | -         | -          | 6.25                | 8.50                   | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, damaged bolts on the gatic lid.   |
| E2    | Onsite   | MW119              | -              | Gauge Only             | 31/07/2023 | -         | -          | 6.25                | 8.50                   | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, damaged bolts on the gatic lid.   |
| E1    | Onsite   | MW120              | -              | Gauge and Sample       | 14/03/2023 | 302498.3  | 5806688.12 | 6.10                | 9.00                   | 11.316                              | 8.900                                    | 4.097                        | 7.219                            | 7.900                      | Low                   | Cloudy water colour. 5% water colour  |
| E2    | Onsite   | MW120              | -              | Gauge and Sample       | 31/07/2023 | 302498.3  | 5806688.12 | 6.10                | 9.00                   | 11.316                              | 8.870                                    | 4.000                        | 7.316                            | 8.000                      | Low                   | Cloudy, no odour or sheen   |
| E1    | Offsite  | MW121              | -              | Gauge and Sample       | 15/03/2023 | 302599.82 | 5805814.08 | 7.30                | 10.30                  | 4.840                               | 9.660                                    | 1.097                        | 3.743                            | 8.660                      | Low                   | Clear water colour  |
| E2    | Offsite  | MW121              | -              | Gauge and Sample       | 31/07/2023 | 302599.82 | 5805814.08 | 7.30                | 10.30                  | 4.840                               | 9.850                                    | 1.082                        | 3.758                            | 8.850                      | Clear                 | Minimal sediment at base of sleeve which was excluded from sample. No odour or sheen.   |

| Event | Location | Monitoring Well ID | Alternative ID | Monitoring Well Status | Date       | Easting    | Northing    | Top of Screen Depth | Bottom of Screen Depth | Top of Well Casing Elevation (mAHD) | Depth to Base of Monitoring Well (mbtbc) | Depth to Groundwater (mbtbc) | Corrected Water Elevation (mAHD) | Top of Hydrasleeve (mbtbc) | Qualitative Turbidity | Observations  |
|-------|----------|--------------------|----------------|------------------------|------------|------------|-------------|---------------------|------------------------|-------------------------------------|--|------------------------------|----------------------------------|----------------------------|-----------------------|---|
| E1    | Offsite  | MW122              | -              | Gauge Only             | 14/03/2023 | -          | -           | 7.30                | 10.30                  | -                                   | -  | -                            | -                                | -                          | -                     | -   |
| E2    | Offsite  | MW122              | -              | Gauge Only             | 31/07/2023 | -          | -           | 7.30                | 10.30                  | -                                   | -  | -                            | -                                | -                          | -                     | Well not located and appears to have been buried. Potentially destroyed.                                |
| E1    | Offsite  | MW123              | -              | Gauge and Sample       | 15/03/2023 | 303075.85  | 5805876.09  | 6.00                | 7.50                   | 5.970                               | 8.461                                    | 2.528                        | 3.442                            | 7.461                      | Low                   | Clear water colour. 5% turbidity  |
| E2    | Offsite  | MW123              | -              | Gauge and Sample       | 31/07/2023 | 303075.85  | 5805876.09  | 6.00                | 7.50                   | 5.970                               | 8.460                                    | 2.669                        | 3.301                            | 7.460                      | Low                   | Clear, no odour or sheen  |
| E1    | Offsite  | MW124              | -              | Gauge and Sample       | 15/03/2023 | 302369.98  | 5806321.5   | 5.00                | 7.00                   | 10.790                              | 7.218                                    | 4.304                        | 6.486                            | 6.218                      | Low                   | Clear water colour. 7% turbidity  |
| E2    | Offsite  | MW124              | -              | Gauge and Sample       | 31/07/2023 | 302369.98  | 5806321.5   | 5.00                | 7.00                   | 10.790                              | 7.320                                    | 4.448                        | 6.342                            | 6.320                      | Low                   | Clear, no odour or sheen  |
| E1    | Offsite  | MW125              | -              | Gauge Only             | 15/03/2023 | 302572.42  | 5806333.83  | 6.00                | 9.00                   | 11.207                              | 8.589                                    | 5.381                        | 5.826                            | -                          | -                     | -   |
| E2    | Offsite  | MW125              | -              | Gauge Only             | 31/07/2023 | 302572.42  | 5806333.83  | 6.00                | 9.00                   | 11.207                              | 8.530                                    | 5.467                        | 5.740                            | -                          | -                     | -   |
| E1    | Offsite  | MW126              | -              | Gauge and Sample       | 15/03/2023 | 302781.66  | 5806362.9   | 3.30                | 6.30                   | 9.224                               | 6.972                                    | 3.949                        | 5.275                            | 5.972                      | Low                   | Clear water colour. 5% turbidity  |
| E2    | Offsite  | MW126              | -              | Gauge and Sample       | 31/07/2023 | 302781.66  | 5806362.9   | 3.30                | 6.30                   | 9.224                               | 7.020                                    | 4.046                        | 5.178                            | 6.020                      | Low                   | Clear, no odour or sheen  |
| E1    | Offsite  | MW127              | -              | Gauge Only             | 14/03/2023 | -          | -           | 6.50                | 9.50                   | -                                   | -  | -                            | -                                | -                          | -                     | Well not located appears to have been covered by asphalt. Potentially destroyed.                        |
| E2    | Offsite  | MW127              | -              | Gauge Only             | 31/07/2023 | -          | -           | 6.50                | 9.50                   | -                                   | -  | -                            | -                                | -                          | -                     | Well not located appears to have been covered by asphalt. Potentially destroyed.                        |
| E1    | Offsite  | MW128              | -              | Gauge Only             | 15/03/2023 | 301547.12  | 5806935.66  | 7.00                | 10.00                  | 15.031                              | 10.010                                   | 4.438                        | 10.593                           | -                          | -                     | -   |
| E2    | Offsite  | MW128              | -              | Gauge Only             | 31/07/2023 | 301547.12  | 5806935.66  | 7.00                | 10.00                  | 15.031                              | 9.840                                    | 4.638                        | 10.393                           | -                          | -                     | -   |
| E2    | Onsite   | MW129              | -              | Gauge and Sample       | 31/07/2023 | 300969.01  | 5806620.611 | 7.00                | 10.00                  | -                                   | -  | -                            | -                                | -                          | -                     | Unable to locate. Potentially destroyed.  |
| E1    | Onsite   | MW130              | -              | Gauge and Sample       | 15/03/2023 | 301059.66  | 5806873.65  | 6.85                | 9.85                   | 15.824                              | 9.670                                    | 4.489                        | 11.335                           | 8.670                      | Low                   | Clear water colour  |
| E2    | Onsite   | MW130              | -              | Gauge and Sample       | 31/07/2023 | 301059.66  | 5806873.65  | 6.85                | 9.85                   | 15.824                              | 9.570                                    | 4.713                        | 11.111                           | 8.570                      | Low                   | Cloudy, no odour or sheen   |
| E1    | Onsite   | MW131              | -              | Gauge and Sample       | 15/03/2023 | 300802.92  | 5806882.37  | 7.00                | 10.00                  | 17.146                              | 10.060                                   | 5.742                        | 11.404                           | 9.060                      | Low                   | Clear water colour, 5% turbidity  |
| E2    | Onsite   | MW131              | -              | Gauge and Sample       | 31/07/2023 | 300802.92  | 5806882.37  | 7.00                | 10.00                  | 17.146                              | 10.210                                   | 5.992                        | 11.154                           | 9.210                      | Low                   | Clear with black particles at bottom of sleeve.   |
| E1    | Offsite  | MW132              | -              | Gauge Only             | 15/03/2023 | 301146.76  | 5807249.68  | 7.40                | 8.90                   | 16.547                              | 8.715                                    | 4.368                        | 12.179                           | -                          | -                     | -   |
| E2    | Offsite  | MW132              | -              | Gauge Only             | 31/07/2023 | 301146.76  | 5807249.68  | 7.40                | 8.90                   | 16.547                              | 8.730                                    | 4.590                        | 11.957                           | -                          | -                     | -   |
| E1    | Offsite  | MW133              | -              | Gauge Only             | 15/03/2023 | 301391.78  | 5807159.24  | 7.00                | 10.00                  | 16.202                              | 9.215                                    | 4.676                        | 11.526                           | -                          | -                     | -   |
| E2    | Offsite  | MW133              | -              | Gauge Only             | 31/07/2023 | 301391.78  | 5807159.24  | 7.00                | 10.00                  | 16.202                              | 9.240                                    | 4.909                        | 11.293                           | -                          | -                     | -   |
| E1    | Offsite  | MW134              | -              | Gauge Only             | 15/03/2023 | 302531.45  | 5807531.45  | 5.50                | 8.50                   | 14.490                              | 8.661                                    | 3.324                        | 11.166                           | -                          | -                     | -   |
| E2    | Offsite  | MW134              | -              | Gauge Only             | 31/07/2023 | 302531.45  | 5807531.45  | 5.50                | 8.50                   | 14.490                              | 8.650                                    | 3.375                        | 11.115                           | -                          | -                     | -   |
| E1    | Offsite  | MW135              | -              | Gauge Only             | 15/03/2023 | 301824.03  | 5807652.59  | 4.80                | 7.80                   | 16.789                              | 7.904                                    | 3.885                        | 12.904                           | -                          | -                     | -   |
| E2    | Offsite  | MW135              | -              | Gauge Only             | 31/07/2023 | 301824.03  | 5807652.59  | 4.80                | 7.80                   | 16.789                              | 7.920                                    | 4.028                        | 12.761                           | -                          | -                     | -   |
| E1    | Offsite  | MW136              | -              | Gauge Only             | 15/03/2023 | 301361.32  | 5807556.68  | 6.00                | 9.00                   | 17.449                              | 6.347                                    | 4.734                        | 12.715                           | -                          | -                     | -   |
| E2    | Offsite  | MW136              | -              | Gauge Only             | 31/07/2023 | 301361.32  | 5807556.68  | 6.00                | 9.00                   | 17.449                              | 6.340                                    | 5.000                        | 12.449                           | -                          | -                     | -   |
| E1    | Onsite   | MW137              | -              | Gauge and Sample       | 15/03/2023 | 300747.95  | 5807149.67  | 7.00                | 10.00                  | 18.026                              | 10.220                                   | 6.078                        | 11.948                           | 9.220                      | Low                   | Cloudy water, 10% turbidity   |
| E2    | Onsite   | MW137              | -              | Gauge and Sample       | 31/07/2023 | 300747.95  | 5807149.67  | 7.00                | 10.00                  | 18.026                              | 9.390                                    | 6.346                        | 11.680                           | 8.390                      | Low                   | Cloudy, no odour or sheen   |
| E1    | Onsite   | MW138              | -              | Gauge and Sample       | 15/03/2023 | 303491.26  | 5806852.41  | 5.00                | 8.00                   | 10.720                              | 8.950                                    | 5.597                        | 5.123                            | 7.950                      | Low                   | Clear water, 3% turbidity.  |
| E2    | Onsite   | MW138              | -              | Gauge and Sample       | 31/07/2023 | 303491.26  | 5806852.41  | 5.00                | 8.00                   | 10.720                              | 8.700                                    | 5.668                        | 5.052                            | 7.700                      | Medium                | Pale brown, no nuisance organisms or vegetation, no odour or sheen.                                     |
| E1    | Onsite   | MW139              | -              | Gauge and Sample       | 15/03/2023 | 303450.4   | 5806941.05  | 6.50                | 9.50                   | 11.076                              | 9.312                                    | 5.710                        | 5.366                            | 8.312                      | Low                   | Clear water colour, 5% turbidity  |
| E2    | Onsite   | MW139              | -              | Gauge and Sample       | 31/07/2023 | 303450.4   | 5806941.05  | 6.50                | 9.50                   | 11.076                              | 9.300                                    | 5.796                        | 5.280                            | 8.300                      | Medium                | Pale brown, brown particles bottom of hydrasleeve, no odour or sheen                                    |
| E1    | Onsite   | MW140              | -              | Gauge and Sample       | 15/03/2023 | 303495.33  | 5807050.82  | 6.50                | 9.50                   | 10.437                              | 9.250                                    | 4.909                        | 5.528                            | 8.250                      | Medium                | Cloudy water, 20% turbidity.  |
| E2    | Onsite   | MW140              | -              | Gauge and Sample       | 31/07/2023 | 303495.33  | 5807050.82  | 6.50                | 9.50                   | 10.437                              | 9.250                                    | 5.031                        | 5.406                            | 8.250                      | Medium                | Suspended solids present within bottom 10% of sleeve. Sulfuric odour, no vegetation, sheen or organisms |
| E1    | Onsite   | MW144              | GW130/1        | Gauge and Sample       | 14/03/2023 | 303197.922 | 5807203.456 | 2.00                | 5.00                   | 12.656                              | 10.160                                   | 5.661                        | 6.995                            | 9.160                      | Low                   | Cloudy water, 5% turbidity  |
| E2    | Onsite   | MW144              | GW130/1        | Gauge and Sample       | 31/07/2023 | 303197.922 | 5807203.456 | 2.00                | 5.00                   | 12.656                              | 10.000                                   | 5.768                        | 6.888                            | 9.000                      | Low                   | Clear, no odour or sheen  |
| E1    | Onsite   | MW145              | GW130/2        | Gauge Only             | 14/03/2023 | 303159.174 | 5807344.231 | 2.00                | 5.00                   | 12.359                              | 9.910                                    | 4.514                        | 7.845                            | -                          | -                     | -   |
| E2    | Onsite   | MW145              | GW130/2        | Gauge Only             | 31/07/2023 | 303159.174 | 5807344.231 | 2.00                | 5.00                   | 12.359                              | 9.910                                    | 4.590                        | 7.769                            | -                          | -                     | -   |
| E1    | Onsite   | MW146              | GW130/3        | Gauge and Sample       | 14/03/2023 | 303019.4   | 5807342.741 | 6.00                | 12.00                  | 13.145                              | 13.051                                   | 4.682                        | 8.463                            | 12.051                     | Low                   | Clear water colour  |
| E2    | Onsite   | MW146              | GW130/3        | Gauge and Sample       | 31/07/2023 | 303019.4   | 5807342.741 | 6.00                | 12.00                  | 13.145                              | 13.040                                   | 4.745                        | 8.400                            | 12.040                     | Low                   | Clear, cloudy, no odour or sheen  |
| E1    | Onsite   | MW152              | GW155/6        | Gauge and Sample       | 15/03/2023 | 302280.15  | 5806408.9   | 5.00                | 8.00                   | 11.638                              | 8.231                                    | 4.360                        | 7.278                            | 7.231                      | Low                   | Clear water colour. 3% turbidity. Possible HC odour   |

| Event | Location | Monitoring Well ID | Alternative ID | Monitoring Well Status | Date       | Easting    | Northing    | Top of Screen Depth | Bottom of Screen Depth | Top of Well Casing Elevation (mAHD) | Depth to Base of Monitoring Well (mbtvc) | Depth to Groundwater (mbtvc) | Corrected Water Elevation (mAHD) | Top of Hydrasleeve (mbtvc) | Qualitative Turbidity | Observations   |
|-------|----------|--------------------|----------------|------------------------|------------|------------|-------------|---------------------|------------------------|-------------------------------------|--|------------------------------|----------------------------------|----------------------------|-----------------------|--|
| E2    | Onsite   | MW152              | GW155/6        | Gauge and Sample       | 31/07/2023 | 302280.15  | 5806408.9   | 5.00                | 8.00                   | 11.638                              | 8.000                                    | 4.366                        | 7.272                            | 7.000                      | Medium                | Brown, no odour or sheen                                 |
| E1    | Onsite   | MW154              | GW2/1          | Gauge Only             | 14/03/2023 | 302498.9   | 5806568.02  | No Data             | No Data                | 11.550                              | 11.967                                   | 4.833                        | 6.717                            | -                          | -                     | -  |
| E2    | Onsite   | MW154              | GW2/1          | Gauge Only             | 31/07/2023 | 302498.9   | 5806568.02  | No Data             | No Data                | 11.550                              | 11.967                                   | 4.927                        | 6.623                            | -                          | -                     | -  |
| E1    | Onsite   | MW155              | GW2/2          | Gauge and Sample       | 14/03/2023 | 302443.03  | 5806586.26  | 5.00                | 8.00                   | 11.646                              | 8.109                                    | 4.804                        | 6.842                            | 7.109                      | Low                   | Clear water colour, 5% turbidity                         |
| E2    | Onsite   | MW155              | GW2/2          | Gauge and Sample       | 31/07/2023 | 302443.03  | 5806586.26  | 5.00                | 8.00                   | 11.646                              | 8.100                                    | 4.904                        | 6.742                            | 7.100                      | Low                   | Clear, no odour or sheen                                 |
| E1    | Onsite   | MW157              | GW2/4          | Gauge Only             | 14/03/2023 | 302451.17  | 5806532.54  | 5.00                | 8.00                   | 11.581                              | 7.745                                    | 4.570                        | 7.011                            | -                          | -                     | -  |
| E2    | Onsite   | MW157              | GW2/4          | Gauge Only             | 31/07/2023 | 302451.17  | 5806532.54  | 5.00                | 8.00                   | 11.581                              | 7.745                                    | 4.689                        | 6.892                            | -                          | -                     | -  |
| E1    | Onsite   | MW159              | GW2/6          | Gauge Only             | 14/03/2023 | 302446.78  | 5806497.86  | 3.00                | 6.00                   | 11.096                              | 7.038                                    | 4.040                        | 7.056                            | -                          | -                     | -  |
| E2    | Onsite   | MW159              | GW2/6          | Gauge Only             | 31/07/2023 | 302446.78  | 5806497.86  | 3.00                | 6.00                   | 11.096                              | 7.038                                    | 4.067                        | 7.029                            | -                          | -                     | -  |
| E1    | Onsite   | MW163              | GW34/1         | Gauge and Sample       | 14/03/2023 | 302793.48  | 5807022.21  | No Data             | No Data                | 12.870                              | 11.324                                   | 5.429                        | 7.441                            | 10.324                     | Low                   | Infested with insects, clear water colour, 7% turbidity  |
| E2    | Onsite   | MW163              | GW34/1         | Gauge and Sample       | 31/07/2023 | 302793.48  | 5807022.21  | No Data             | No Data                | 12.870                              | 11.140                                   | 5.250                        | 7.620                            | 10.140                     | Low                   | Clear, no odour or sheen                                 |
| E1    | Onsite   | MW164              | GW36/1         | Gauge Only             | 14/03/2023 | 302732.68  | 5807188.71  | No Data             | No Data                | 13.200                              | 10.858                                   | 5.055                        | 8.145                            | -                          | -                     | -  |
| E2    | Onsite   | MW164              | GW36/1         | Gauge Only             | 31/07/2023 | 302732.68  | 5807188.71  | No Data             | No Data                | 13.200                              | 10.858                                   | 5.245                        | 7.955                            | -                          | -                     | -  |
| E1    | Onsite   | MW165              | GW514/1        | Gauge Only             | 15/03/2023 | 303466.97  | 5807309.33  | No Data             | No Data                | 10.600                              | 13.450                                   | 3.827                        | 6.773                            | -                          | -                     | -  |
| E2    | Onsite   | MW165              | GW514/1        | Gauge Only             | 31/07/2023 | 303466.97  | 5807309.33  | No Data             | No Data                | 10.600                              | 13.250                                   | 3.838                        | 6.762                            | -                          | -                     | -  |
| E1    | Onsite   | MW168              | GW582/2        | Gauge Only             | 14/03/2023 | 302501.41  | 5806491.89  | 7.00                | 8.00                   | 11.446                              | 7.982                                    | 4.771                        | 6.675                            | -                          | -                     | -  |
| E2    | Onsite   | MW168              | GW582/2        | Gauge Only             | 31/07/2023 | 302501.41  | 5806491.89  | 7.00                | 8.00                   | 11.446                              | 7.982                                    | 4.868                        | 6.578                            | -                          | -                     | -  |
| E1    | Onsite   | MW171              | GW582/5        | Gauge Only             | 14/03/2023 | 302453.5   | 5806452.14  | 5.00                | 8.00                   | 12.422                              | 8.745                                    | 5.489                        | 6.933                            | -                          | -                     | -  |
| E2    | Onsite   | MW171              | GW582/5        | Gauge Only             | 31/07/2023 | 302453.5   | 5806452.14  | 5.00                | 8.00                   | 12.422                              | 8.745                                    | 5.536                        | 6.886                            | -                          | -                     | -  |
| E1    | Onsite   | MW173              | GW582/7        | Gauge Only             | 14/03/2023 | 302479.95  | 5806461.83  | 4.80                | 7.80                   | 12.255                              | 8.900                                    | 5.429                        | 6.826                            | -                          | -                     | -  |
| E2    | Onsite   | MW173              | GW582/7        | Gauge Only             | 31/07/2023 | 302479.95  | 5806461.83  | 4.80                | 7.80                   | 12.255                              | 8.900                                    | 5.519                        | 6.736                            | -                          | -                     | -  |
| E1    | Onsite   | MW175              | GW598/1        | Gauge Only             | 15/03/2023 | 303486.44  | 5807298.83  | No Data             | No Data                | 10.600                              | 12.410                                   | 3.889                        | 6.711                            | -                          | -                     | -  |
| E2    | Onsite   | MW175              | GW598/1        | Gauge Only             | 31/07/2023 | 303486.44  | 5807298.83  | No Data             | No Data                | 10.600                              | 12.220                                   | 3.902                        | 6.698                            | -                          | -                     | -  |
| E1    | Onsite   | MW176              | GW7/1          | Gauge Only             | 14/03/2023 | 302506.69  | 5806616.11  | No Data             | No Data                | 11.340                              | 9.050                                    | 4.401                        | 6.939                            | -                          | -                     | -  |
| E2    | Onsite   | MW176              | GW7/1          | Gauge Only             | 31/07/2023 | 302506.69  | 5806616.11  | No Data             | No Data                | 11.340                              | 8.990                                    | 4.521                        | 6.819                            | -                          | -                     | -  |
| E1    | Onsite   | MW181              | GW7/14         | Gauge Only             | 14/03/2023 | 302550.25  | 5806523.31  | 3.50                | 7.40                   | 11.171                              | 6.671                                    | 4.424                        | 6.747                            | -                          | -                     | -  |
| E2    | Onsite   | MW181              | GW7/14         | Gauge Only             | 31/07/2023 | 302550.25  | 5806523.31  | 3.50                | 7.40                   | 11.171                              | 6.671                                    | 4.400                        | 6.771                            | -                          | -                     | -  |
| E1    | Onsite   | MW182              | GW7/15         | Gauge and Sample       | 14/03/2023 | 302599.22  | 5806504.882 | 5.00                | 7.00                   | 12.036                              | 8.100                                    | 5.812                        | 6.224                            | 7.100                      | Low                   | Clear water colour                                       |
| E2    | Onsite   | MW182              | GW7/15         | Gauge and Sample       | 31/07/2023 | 302599.22  | 5806504.882 | 5.00                | 7.00                   | 12.036                              | 7.990                                    | 5.903                        | 6.133                            | 7.000                      | Low                   | Clear, no odour or sheen                                 |
| E1    | Onsite   | MW185              | GW7/5          | Gauge and Sample       | 14/03/2023 | 302485.67  | 5806605.94  | 5.00                | 8.00                   | 11.191                              | 8.320                                    | 4.556                        | 6.635                            | 7.320                      | Low                   | Clear water colour                                       |
| E2    | Onsite   | MW185              | GW7/5          | Gauge and Sample       | 31/07/2023 | 302485.67  | 5806605.94  | 5.00                | 8.00                   | 11.191                              | 8.270                                    | 4.721                        | 6.470                            | 7.270                      | Low                   | Clear, no odour or sheen                                 |
| E1    | Onsite   | MW186              | GW7/6          | Gauge Only             | 14/03/2023 | 302539.81  | 5806634.15  | 4.20                | 7.10                   | 10.733                              | 7.350                                    | 4.069                        | 6.664                            | -                          | -                     | -  |
| E2    | Onsite   | MW186              | GW7/6          | Gauge Only             | 31/07/2023 | 302539.81  | 5806634.15  | 4.20                | 7.10                   | 10.733                              | 7.310                                    | 4.187                        | 6.546                            | -                          | -                     | -  |
| E1    | Onsite   | MW188              | GW7/8          | Gauge Only             | 14/03/2023 | 302550.341 | 5806564.5   | 4.00                | 7.00                   | 11.223                              | 6.740                                    | 4.599                        | 6.624                            | -                          | -                     | -  |
| E2    | Onsite   | MW188              | GW7/8          | Gauge Only             | 31/07/2023 | 302550.341 | 5806564.5   | 4.00                | 7.00                   | 11.223                              | 6.740                                    | 4.706                        | 6.517                            | -                          | -                     | -  |
| E1    | Onsite   | MW190              | GW81/1         | Gauge Only             | 14/03/2023 | 302323.49  | 5806422.04  | No Data             | No Data                | 11.210                              | 9.945                                    | 4.527                        | 6.683                            | -                          | -                     | -  |
| E2    | Onsite   | MW190              | GW81/1         | Gauge Only             | 31/07/2023 | 302323.49  | 5806422.04  | No Data             | No Data                | 11.210                              | 9.945                                    | 4.580                        | 6.630                            | -                          | -                     | -  |
| E1    | Onsite   | MW192              | GW81/3         | Gauge and Sample       | 14/03/2023 | 302333.74  | 5806445.4   | 5.00                | 8.80                   | 11.559                              | 8.801                                    | 4.900                        | 6.659                            | 7.801                      | Low                   | Clear water colour, 3% turbidity                         |
| E2    | Onsite   | MW192              | GW81/3         | Gauge and Sample       | 31/07/2023 | 302333.74  | 5806445.4   | 5.00                | 8.80                   | 11.559                              | 8.880                                    | 5.012                        | 6.547                            | 7.880                      | Low                   | Slightly brown, no odour or sheen                        |
| E1    | Onsite   | MW194              | GW81/5         | Gauge Only             | 14/03/2023 | 302314.831 | 5806425.287 | 5.80                | 8.80                   | 11.406                              | 7.290                                    | 4.542                        | 6.864                            | -                          | -                     | -  |
| E2    | Onsite   | MW194              | GW81/5         | Gauge Only             | 31/07/2023 | 302314.831 | 5806425.287 | 5.80                | 8.80                   | 11.406                              | NM                                       | NM                           | -                                | -                          | -                     | Unable to access well due to material stored on the top. |
| E1    | Onsite   | MW196              | GW81/7         | Gauge Only             | 14/03/2023 | 302353.52  | 5806429.82  | 15.30               | 19.20                  | 12.504                              | 20.620                                   | 5.883                        | 6.621                            | -                          | -                     | -  |
| E2    | Onsite   | MW196              | GW81/7         | Gauge Only             | 31/07/2023 | 302353.52  | 5806429.82  | 15.30               | 19.20                  | 12.504                              | 20.620                                   | 5.992                        | 6.512                            | -                          | -                     | -  |
| E1    | Onsite   | MW197              | GW88A/1        | Gauge Only             | 14/03/2023 | 302235.18  | 5806416.92  | No Data             | No Data                | 11.280                              | 13.770                                   | 4.200                        | 7.080                            | -                          | -                     | -  |
| E2    | Onsite   | MW197              | GW88A/1        | Gauge Only             | 31/07/2023 | 302235.18  | 5806416.92  | No Data             | No Data                | 11.280                              | 13.770                                   | 4.299                        | 6.981                            | -                          | -                     | -  |
| E1    | Onsite   | MW200              | GW90/2         | Gauge and Sample       | 14/03/2023 | 302606.689 | 5806611.544 | 4.00                | 7.00                   | 10.733                              | 7.024                                    | 4.087                        | 6.646                            | 6.024                      | Low                   | Cloudy water colour, 10% turbidity                       |
| E2    | Onsite   | MW200              | GW90/2         | Gauge and Sample       | 31/07/2023 | 302606.689 | 5806611.544 | 4.00                | 7.00                   | 10.733                              | 7.030                                    | 4.630                        | 6.103                            | 6.030                      | High                  | Cloudy brown, no odour or sheen                          |
| E1    | Onsite   | MW201              | GW90/3         | Gauge Only             | 14/03/2023 | 302638.494 | 5806549.1   | 5.00                | 7.00                   | 11.338                              | 6.675                                    | 4.840                        | 6.498                            | -                          | -                     | -  |
| E2    | Onsite   | MW201              | GW90/3         | Gauge Only             | 31/07/2023 | 302638.494 | 5806549.1   | 5.00                | 7.00                   | 11.338                              | 6.870                                    | 4.916                        | 6.422                            | -                          | -                     | -  |
| E1    | Onsite   | MW203              | GWA/1          | Gauge Only             | 14/03/2023 | 302521.58  | 5807834.65  | No Data             | No Data                | 20.470                              | 28.780                                   | 7.680                        | 12.790                           | -                          | -                     | -  |

| Event | Location | Monitoring Well ID | Alternative ID | Monitoring Well Status | Date       | Easting    | Northing    | Top of Screen Depth | Bottom of Screen Depth | Top of Well Casing Elevation (mAHD) | Depth to Base of Monitoring Well (mbtoc) | Depth to Groundwater (mbtoc) | Corrected Water Elevation (mAHD) | Top of Hydrasleeve (mbtoc) | Qualitative Turbidity | Observations  |
|-------|----------|--------------------|----------------|------------------------|------------|------------|-------------|---------------------|------------------------|-------------------------------------|--|------------------------------|----------------------------------|----------------------------|-----------------------|---|
| E2    | Onsite   | MW203              | GWA/1          | Gauge Only             | 31/07/2023 | 302521.58  | 5807834.65  | No Data             | No Data                | 20.470                              | 28.780                                   | 7.490                        | 12.980                           | -                          | -                     | -   |
| E1    | Onsite   | MW206              | GWAM/3         | Gauge Only             | 14/03/2023 | 302762.491 | 5806902.884 | 5.00                | 9.00                   | 12.542                              | 9.000                                    | 5.161                        | 7.381                            | -                          | -                     | -   |
| E2    | Onsite   | MW206              | GWAM/3         | Gauge Only             | 31/07/2023 | 302762.491 | 5806902.884 | 5.00                | 9.00                   | 12.542                              | 9.000                                    | 5.000                        | 7.542                            | -                          | -                     | -   |
| E1    | Onsite   | MW207              | GWAM/4         | Gauge and Sample       | 14/03/2023 | 302791.079 | 5806828.498 | 4.80                | 7.80                   | 11.681                              | 7.576                                    | 4.653                        | 7.028                            | 6.576                      | Low                   | Clear water colour, 5% turbidity  |
| E2    | Onsite   | MW207              | GWAM/4         | Gauge and Sample       | 31/07/2023 | 302791.079 | 5806828.498 | 4.80                | 7.80                   | 11.681                              | 7.650                                    | 4.789                        | 6.892                            | 6.650                      | Low                   | Cloudy, no odour or sheen   |
| E1    | Onsite   | MW208              | GWAM/5         | Gauge and Sample       | 14/03/2023 | 302802.254 | 5806982.549 | 5.00                | 9.00                   | 12.910                              | 9.354                                    | 5.539                        | 7.371                            | 8.354                      | Low                   | No Gatic lid, clear water, 3% turbidity   |
| E2    | Onsite   | MW208              | GWAM/5         | Gauge and Sample       | 31/07/2023 | 302802.254 | 5806982.549 | 5.00                | 9.00                   | 12.910                              | 9.450                                    | 5.726                        | 7.184                            | 8.450                      | Low                   | Clear, no odour or sheen  |
| E1    | Onsite   | MW209              | GWAM/6         | Gauge Only             | 14/03/2023 | 302854.587 | 5806823.054 | 4.00                | 7.80                   | 12.683                              | 8.644                                    | 6.342                        | 6.341                            | -                          | -                     | -   |
| E2    | Onsite   | MW209              | GWAM/6         | Gauge Only             | 31/07/2023 | 302854.587 | 5806823.054 | 4.00                | 8.00                   | 12.683                              | 8.650                                    | 6.553                        | 6.130                            | -                          | -                     | -   |
| E1    | Onsite   | MW211              | GWB/2          | Gauge and Sample       | 14/03/2023 | 302667.386 | 5807389.359 | No Data             | No Data                | 14.370                              | 14.330                                   | 4.256                        | 10.114                           | 13.330                     | Low                   | Clear water colour  |
| E2    | Onsite   | MW211              | GWB/2          | Gauge and Sample       | 31/07/2023 | 302667.386 | 5807389.359 | No Data             | No Data                | 14.370                              | 13.410                                   | 4.279                        | 10.091                           | 12.410                     | Low                   | Clear, no odour or sheen  |
| E1    | Onsite   | MW212              | GWC/1          | Gauge Only             | 14/03/2023 | 302982.97  | 5807571.64  | No Data             | No Data                | 12.290                              | 5.810                                    | 2.919                        | 9.371                            | -                          | -                     | -   |
| E2    | Onsite   | MW212              | GWC/1          | Gauge Only             | 31/07/2023 | 302982.97  | 5807571.64  | No Data             | No Data                | 12.290                              | 5.810                                    | 2.929                        | 9.361                            | -                          | -                     | -   |
| E1    | Onsite   | MW213              | GWD/1          | Gauge Only             | 14/03/2023 | 302763.13  | 5807546.98  | No Data             | No Data                | 13.920                              | 15.800                                   | 3.731                        | 10.189                           | -                          | -                     | -   |
| E2    | Onsite   | MW213              | GWD/1          | Gauge Only             | 31/07/2023 | 302763.13  | 5807546.98  | No Data             | No Data                | 13.920                              | 15.800                                   | 3.741                        | 10.179                           | -                          | -                     | -   |
| E1    | Onsite   | MW214              | GWE/1          | Gauge Only             | 14/03/2023 | 302712.22  | 5807692.79  | No Data             | No Data                | 18.060                              | 26.010                                   | 6.246                        | 11.814                           | -                          | -                     | -   |
| E2    | Onsite   | MW214              | GWE/1          | Gauge Only             | 31/07/2023 | 302712.22  | 5807692.79  | No Data             | No Data                | 18.060                              | 26.010                                   | 6.235                        | 11.825                           | -                          | -                     | -   |
| E1    | Onsite   | MW215              | GWG/1          | Gauge Only             | 20/03/2023 | 303243.36  | 5807736.72  | No Data             | No Data                | 10.540                              | 8.782                                    | 1.394                        | 9.146                            | -                          | -                     | -   |
| E2    | Onsite   | MW215              | GWG/1          | Gauge Only             | 1/08/2023  | 303243.36  | 5807736.72  | No Data             | No Data                | 10.540                              | 8.760                                    | 1.227                        | 9.313                            | -                          | -                     | -   |
| E1    | Onsite   | MW217              | GWGA01         | Gauge and Sample       | 14/03/2023 | 302703.17  | 5807616.61  | 8.00                | 12.00                  | 17.236                              | 11.790                                   | 5.923                        | 11.313                           | 10.790                     | Low                   | Clear water colour. 5% turbidity  |
| E2    | Onsite   | MW217              | GWGA01         | Gauge and Sample       | 31/07/2023 | 302703.17  | 5807616.61  | 8.00                | 12.00                  | 17.236                              | 11.800                                   | 6.010                        | 11.226                           | 10.800                     | Low                   | Clear, no odour or sheen  |
| E1    | Onsite   | MW218              | GWH/1          | Gauge Only             | 15/03/2023 | 303437.8   | 5807888.13  | No Data             | No Data                | 10.550                              | 8.180                                    | 1.566                        | 8.984                            | -                          | -                     | -   |
| E2    | Onsite   | MW218              | GWH/1          | Gauge Only             | 1/08/2023  | 303437.8   | 5807888.13  | No Data             | No Data                | 10.550                              | 8.170                                    | 1.511                        | 9.039                            | -                          | -                     | -   |
| E1    | Onsite   | MW222              | GWK/1          | Gauge Only             | 15/03/2023 | 303668.03  | 5808239.88  | No Data             | No Data                | 12.550                              | 8.370                                    | 4.115                        | 8.435                            | -                          | -                     | -   |
| E2    | Onsite   | MW222              | GWK/1          | Gauge Only             | 1/08/2023  | 303668.03  | 5808239.88  | No Data             | No Data                | 12.550                              | 8.300                                    | 4.124                        | 8.426                            | -                          | -                     | -   |
| E1    | Onsite   | MW225              | GWSTP/1        | Gauge Only             | 14/03/2023 | 302719.2   | 5806623.43  | No Data             | No Data                | 10.580                              | 13.470                                   | 4.401                        | 6.179                            | -                          | -                     | -   |
| E2    | Onsite   | MW225              | GWSTP/1        | Gauge Only             | 31/07/2023 | 302719.2   | 5806623.43  | No Data             | No Data                | 10.580                              | 13.470                                   | 4.508                        | 6.072                            | -                          | -                     | -   |
| E1    | Offsite  | MW228              | -              | Gauge and Sample       | 15/03/2023 | 303335.69  | 5806188.31  | 4.00                | 7.00                   | 5.710                               | 4.120                                    | 2.104                        | 3.606                            | 3.600                      | Low                   | No well cap and top weight attached. Clear water colour. 7% turbidity.                          |
| E2    | Offsite  | MW228              | -              | Gauge and Sample       | 31/07/2023 | 303335.69  | 5806188.31  | 4.00                | 7.00                   | 5.710                               | 6.900                                    | 2.207                        | 3.503                            | 5.900                      | High                  | Brown, no odour or sheen  |
| E1    | Offsite  | MW229              | -              | Gauge and Sample       | 15/03/2023 | 303554.24  | 5806529.27  | 8.10                | 10.10                  | 7.660                               | 9.710                                    | 3.739                        | 3.921                            | 8.710                      | Low                   | Clear water colour. 5% turbidity  |
| E2    | Offsite  | MW229              | -              | Gauge and Sample       | 31/07/2023 | 303554.24  | 5806529.27  | 8.10                | 10.10                  | 7.660                               | 9.700                                    | 3.815                        | 3.845                            | 8.700                      | Low                   | Clear, no odour or sheen  |
| E1    | Offsite  | MW230              | -              | Gauge Only             | 15/03/2023 | 303871.55  | 5806570.81  | 4.00                | 6.50                   | 8.400                               | -  | -                            | -                                | -                          | -                     | Well not located and may be destroyed as it appears to be in an area of a newly developed park. |
| E2    | Offsite  | MW230              | -              | Gauge Only             | 31/07/2023 | 303871.55  | 5806570.81  | 4.00                | 6.50                   | 8.400                               | -  | -                            | -                                | -                          | -                     | Unable to locate, appears to be buried in an area of a newly developed park.                    |

Notes:  
 NM: Not Measured  
 -: Data not available  
 TDS = EC\*0.65  
 Corrected Redox = EC + 200, in accordance with equipment manufacturer guidance.



| Event | Location | Monitoring Well ID | Alternative ID | Temp (°C) | DO (mg/L) | EC (µS/cm) | pH   | Eh (mV) | Corrected ORP (mV) | TDS (mg/L) |
|-------|----------|--------------------|----------------|-----------|-----------|------------|------|---------|--------------------|------------|
| E1    | Onsite   | MW100              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW100              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW101              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW101              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW102              | -              | 22.4      | 4.34      | 7790       | 7.66 | 79.0    | 279.0              | 5064       |
| E2    | Onsite   | MW102              | -              | 16.4      | 3.49      | 8404       | 7.53 | -6.2    | 193.8              | 5463       |
| E1    | Onsite   | MW103              | -              | 19.3      | 1.16      | 4979       | 7.65 | 31.9    | 231.9              | 3236       |
| E2    | Onsite   | MW103              | -              | 15.1      | 1.72      | 3221       | 7.84 | 3.4     | 203.4              | 2094       |
| E1    | Onsite   | MW104              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW104              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW105              | -              | 21.3      | 0.88      | 4449       | 7.54 | -97.5   | 102.5              | 2892       |
| E2    | Onsite   | MW105              | -              | 15.6      | 1.60      | 2852       | 7.37 | 86.4    | 286.4              | 1854       |
| E1    | Onsite   | MW106              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW106              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW107              | -              | 21.1      | 1.04      | 8242       | 6.92 | -97.2   | 102.8              | 5357       |
| E2    | Onsite   | MW107              | -              | 15.6      | 1.38      | 6053       | 7.00 | -52.0   | 148.0              | 3934       |
| E1    | Onsite   | MW108              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW108              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW109              | -              | 18.8      | 0.74      | 971        | 7.16 | 105.5   | 305.5              | 631        |
| E2    | Onsite   | MW109              | -              | 16.2      | 0.41      | 1087       | 6.72 | 67.4    | 267.4              | 707        |
| E1    | Onsite   | MW110              | -              | 20.2      | 3.32      | 6054       | 7.46 | 77.7    | 277.7              | 3935       |
| E2    | Onsite   | MW110              | -              | 15.0      | 3.36      | 4908       | 7.70 | 50.1    | 250.1              | 3190       |
| E1    | Onsite   | MW111              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW111              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW112              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW112              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW113              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW113              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW114              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW114              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW115              | -              | 24.3      | 1.03      | 6036       | 7.79 | 73.9    | 273.9              | 3923       |
| E2    | Onsite   | MW115              | -              | 13.4      | 1.21      | 4385       | 7.76 | 121.0   | 321.0              | 2850       |
| E1    | Onsite   | MW116              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW116              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW117              | -              | 21.7      | 3.43      | 7576       | 7.52 | 64.0    | 264.0              | 4924       |
| E2    | Onsite   | MW117              | -              | 16.9      | 3.50      | 6508       | 7.55 | -14.8   | 185.2              | 4230       |
| E1    | Onsite   | MW118              | -              | 22.7      | 2.62      | 4749       | 8.06 | 83.1    | 283.1              | 3087       |
| E2    | Onsite   | MW118              | -              | 18.9      | 3.25      | 4322       | 8.02 | -28.7   | 171.3              | 2809       |
| E1    | Onsite   | MW119              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW119              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW120              | -              | 21.4      | 1.34      | 3099       | 8.55 | 60.3    | 260.3              | 2014       |
| E2    | Onsite   | MW120              | -              | 16.6      | 0.89      | 2154       | 8.69 | -26.1   | 173.9              | 1400       |
| E1    | Offsite  | MW121              | -              | 23.6      | 3.33      | 8244       | 7.40 | 66.8    | 266.8              | 5359       |
| E2    | Offsite  | MW121              | -              | 17.2      | 5.18      | 6520       | 7.08 | 104.3   | 304.3              | 4238       |

| Event | Location | Monitoring Well ID | Alternative ID | Temp (°C) | DO (mg/L) | EC (µS/cm) | pH   | Eh (mV) | Corrected ORP (mV) | TDS (mg/L) |
|-------|----------|--------------------|----------------|-----------|-----------|------------|------|---------|--------------------|------------|
| E1    | Offsite  | MW122              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW122              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Offsite  | MW123              | -              | 19.8      | 3.85      | 7997       | 7.03 | 84.5    | 284.5              | 5198       |
| E2    | Offsite  | MW123              | -              | 14.1      | 5.57      | 4546       | 6.89 | 140.3   | 340.3              | 2955       |
| E1    | Offsite  | MW124              | -              | 18.5      | 1.58      | 1016       | 6.99 | 94.2    | 294.2              | 660        |
| E2    | Offsite  | MW124              | -              | 16.3      | 2.39      | 1056       | 7.20 | 88.6    | 288.6              | 686        |
| E1    | Offsite  | MW125              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW125              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Offsite  | MW126              | -              | 19.5      | 1.36      | 7659       | 7.27 | 95.4    | 295.4              | 4978       |
| E2    | Offsite  | MW126              | -              | 15.8      | 5.38      | 3963       | 7.39 | 114.4   | 314.4              | 2576       |
| E1    | Offsite  | MW127              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW127              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Offsite  | MW128              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW128              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW129              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW130              | -              | 21.1      | 2.19      | 15204      | 7.79 | 104.6   | 304.6              | 9883       |
| E2    | Onsite   | MW130              | -              | 16.6      | 2.78      | 9554       | 7.87 | -7.8    | 192.2              | 6210       |
| E1    | Onsite   | MW131              | -              | 19.2      | 0.55      | 14404      | 7.35 | 98.5    | 298.5              | 9363       |
| E2    | Onsite   | MW131              | -              | 16.0      | 0.63      | 13228      | 7.39 | -68.6   | 131.4              | 8598       |
| E1    | Offsite  | MW132              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW132              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Offsite  | MW133              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW133              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Offsite  | MW134              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW134              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Offsite  | MW135              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW135              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Offsite  | MW136              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW136              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW137              | -              | 17.9      | 1.66      | 5486       | 7.78 | 54.8    | 254.8              | 3566       |
| E2    | Onsite   | MW137              | -              | 16.8      | 2.47      | 4519       | 7.80 | -14.5   | 185.5              | 2937       |
| E1    | Onsite   | MW138              | -              | 21.8      | 1.76      | 3958       | 7.47 | 66.6    | 266.6              | 2573       |
| E2    | Onsite   | MW138              | -              | 16.7      | 2.95      | 2563       | 7.62 | 79.0    | 279.0              | 1666       |
| E1    | Onsite   | MW139              | -              | 21.5      | 2.08      | 6841       | 7.36 | 53.4    | 253.4              | 4447       |
| E2    | Onsite   | MW139              | -              | 18.0      | 3.27      | 5392       | 7.30 | 100.4   | 300.4              | 3505       |
| E1    | Onsite   | MW140              | -              | 21.0      | 1.59      | 9913       | 7.01 | -11.0   | 189.0              | 6443       |
| E2    | Onsite   | MW140              | -              | 16.6      | 1.76      | 8536       | 7.13 | 37.9    | 237.9              | 5548       |
| E1    | Onsite   | MW144              | GW130/1        | 23.3      | 2.17      | 9847       | 7.52 | 78.2    | 278.2              | 6401       |
| E2    | Onsite   | MW144              | GW130/1        | 16.0      | 3.44      | 8490       | 7.54 | 51.1    | 251.1              | 5519       |
| E1    | Onsite   | MW145              | GW130/2        | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW145              | GW130/2        | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW146              | GW130/3        | 24.0      | 2.31      | 10238      | 7.29 | 77.2    | 277.2              | 6655       |
| E2    | Onsite   | MW146              | GW130/3        | 16.4      | 2.39      | 7769       | 7.35 | 4.4     | 204.4              | 5050       |
| E1    | Onsite   | MW152              | GW155/6        | 20.9      | 0.83      | 1142       | 7.11 | -43.9   | 156.1              | 742        |

| Event | Location | Monitoring Well ID | Alternative ID | Temp (°C) | DO (mg/L) | EC (µS/cm) | pH   | Eh (mV) | Corrected ORP (mV) | TDS (mg/L) |
|-------|----------|--------------------|----------------|-----------|-----------|------------|------|---------|--------------------|------------|
| E2    | Onsite   | MW152              | GW155/6        | 16.6      | 3.10      | 674        | 8.40 | 58.9    | 258.9              | 438        |
| E1    | Onsite   | MW154              | GW2/1          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW154              | GW2/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW155              | GW2/2          | 20.5      | 1.67      | 1315       | 8.53 | 62.8    | 262.8              | 855        |
| E2    | Onsite   | MW155              | GW2/2          | 16.6      | 3.10      | 674        | 8.40 | 58.9    | 258.9              | 438        |
| E1    | Onsite   | MW157              | GW2/4          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW157              | GW2/4          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW159              | GW2/6          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW159              | GW2/6          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW163              | GW34/1         | 20.7      | 0.71      | 3398       | 7.72 | 91.7    | 291.7              | 2209       |
| E2    | Onsite   | MW163              | GW34/1         | 18.8      | 0.55      | 2667       | 7.84 | -126.3  | 73.7               | 1734       |
| E1    | Onsite   | MW164              | GW36/1         | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW164              | GW36/1         | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW165              | GW514/1        | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW165              | GW514/1        | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW168              | GW582/2        | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW168              | GW582/2        | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW171              | GW582/5        | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW171              | GW582/5        | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW173              | GW582/7        | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW173              | GW582/7        | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW175              | GW598/1        | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW175              | GW598/1        | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW176              | GW7/1          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW176              | GW7/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW181              | GW7/14         | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW181              | GW7/14         | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW182              | GW7/15         | 20.2      | 1.25      | 7001       | 7.66 | 76.5    | 276.5              | 4551       |
| E2    | Onsite   | MW182              | GW7/15         | 15.8      | 1.43      | 4897       | 7.57 | 39.3    | 239.3              | 3183       |
| E1    | Onsite   | MW185              | GW7/5          | 20.6      | 2.36      | 1001       | 9.05 | 37.1    | 237.1              | 651        |
| E2    | Onsite   | MW185              | GW7/5          | 17.6      | 2.37      | 860        | 9.00 | -30.6   | 169.4              | 559        |
| E1    | Onsite   | MW186              | GW7/6          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW186              | GW7/6          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW188              | GW7/8          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW188              | GW7/8          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW190              | GW81/1         | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW190              | GW81/1         | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW192              | GW81/3         | 20.7      | 1.65      | 4092       | 8.02 | 72.6    | 272.6              | 2660       |
| E2    | Onsite   | MW192              | GW81/3         | 16.2      | 2.83      | 1187       | 8.84 | -21.4   | 178.6              | 772        |
| E1    | Onsite   | MW194              | GW81/5         | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW194              | GW81/5         | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW196              | GW81/7         | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW196              | GW81/7         | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW197              | GW88A/1        | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW197              | GW88A/1        | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW200              | GW90/2         | 20.8      | 1.72      | 4555       | 7.48 | 103.9   | 303.9              | 2961       |
| E2    | Onsite   | MW200              | GW90/2         | 17.2      | 2.35      | 4080       | 7.57 | -9.9    | 190.1              | 2652       |
| E1    | Onsite   | MW201              | GW90/3         | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW201              | GW90/3         | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW203              | GWA/1          | -         | -         | -          | -    | -       | -                  | -          |

| Event | Location | Monitoring Well ID | Alternative ID | Temp (°C) | DO (mg/L) | EC (µS/cm) | pH   | Eh (mV) | Corrected ORP (mV) | TDS (mg/L) |
|-------|----------|--------------------|----------------|-----------|-----------|------------|------|---------|--------------------|------------|
| E2    | Onsite   | MW203              | GWA/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW206              | GWAM/3         | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW206              | GWAM/3         | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW207              | GWAM/4         | 24.0      | 2.42      | 1947       | 7.27 | 79.2    | 279.2              | 1266       |
| E2    | Onsite   | MW207              | GWAM/4         | 17.5      | 3.76      | 1243       | 7.45 | -11.3   | 188.7              | 808        |
| E1    | Onsite   | MW208              | GWAM/5         | 21.4      | 3.30      | 3826       | 8.34 | 105.9   | 305.9              | 2487       |
| E2    | Onsite   | MW208              | GWAM/5         | 17.1      | 4.31      | 1074       | 8.73 | -36.3   | 163.7              | 698        |
| E1    | Onsite   | MW209              | GWAM/6         | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW209              | GWAM/6         | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW211              | GWB/2          | 23.0      | 3.53      | 10312      | 7.42 | 87.7    | 287.7              | 6703       |
| E2    | Onsite   | MW211              | GWB/2          | 16.3      | 3.44      | 8374       | 7.40 | 2.2     | 202.2              | 5443       |
| E1    | Onsite   | MW212              | GWC/1          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW212              | GWC/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW213              | GWD/1          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW213              | GWD/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW214              | GWE/1          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW214              | GWE/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW215              | GWG/1          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW215              | GWG/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW217              | GWGA01         | 16.5      | 4.06      | 5088       | 7.41 | 152.1   | 352.1              | 3307       |
| E2    | Onsite   | MW217              | GWGA01         | 16.0      | 3.18      | 5455       | 7.48 | -24.3   | 175.7              | 3546       |
| E1    | Onsite   | MW218              | GWH/1          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW218              | GWH/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW222              | GWK/1          | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW222              | GWK/1          | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Onsite   | MW225              | GWSTP/1        | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Onsite   | MW225              | GWSTP/1        | -         | -         | -          | -    | -       | -                  | -          |
| E1    | Offsite  | MW228              | -              | 18.4      | 2.10      | 4015       | 7.31 | 93.6    | 293.6              | 2610       |
| E2    | Offsite  | MW228              | -              | 12.1      | 4.00      | 4283       | 7.12 | 157.1   | 357.1              | 2784       |
| E1    | Offsite  | MW229              | -              | 18.1      | 2.13      | 7988       | 7.19 | 85.3    | 285.3              | 5192       |
| E2    | Offsite  | MW229              | -              | 16.7      | 2.77      | 6475       | 7.32 | 77.8    | 277.8              | 4209       |
| E1    | Offsite  | MW230              | -              | -         | -         | -          | -    | -       | -                  | -          |
| E2    | Offsite  | MW230              | -              | -         | -         | -          | -    | -       | -                  | -          |

Notes:  
 NM: Not Measured  
 '-': Data not available  
 TDS = EC\*0.65  
 Corrected Redox = EC + 200, in accordance with equ

| Event       | Location | Location ID | Easting | Northing  | Date       | Sample Depth (m) | Water Body Depth (m) | Flow (m/s) | DO (mg/L) | EC (µS/cm) | pH   | Eh (mV) | Corrected ORP (mV) | Temp (°C) | TDS (mg/L) | Observations  |
|-------------|----------|-------------|---------|-----------|------------|------------------|----------------------|------------|-----------|------------|------|---------|--------------------|-----------|------------|---|
| E1          | Onsite   | SW005       | 303563  | 5807650   | 20/03/2023 | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Dry   |
| E2          | Onsite   | SW005       | 303563  | 5807650   | 2/08/2023  | 0.05             | -                    | Stagnant   | 4.78      | 1576       | 7.08 | -22.0   | 178.0              | 13.2      | 1024       | Dark brown, high turbidity, no odour or sheen                                 |
| E1          | Onsite   | SW006       | 303594  | 5808237   | 20/03/2023 | 0.10             | 0.30                 | Low        | 6.93      | 7340       | 7.81 | 102.8   | 302.8              | 17.9      | 4771       | Clear water, low turbidity, water flowing from road direction.                |
| E2          | Onsite   | SW006       | 303594  | 5808237   | 1/08/2023  | 0.10             | 0.50                 | Low        | 6.72      | 1244       | 7.66 | -22.0   | 178.0              | 12.3      | 809        | Clear, slightly brown, foam on top of water                                   |
| E1          | Onsite   | SW008       | 302320  | 5807920   | 20/03/2023 | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Dry   |
| E2          | Onsite   | SW008       | 302320  | 5807920   | 2/08/2023  | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Dry   |
| E1          | Offsite  | SW012       | 303443  | 5805592   | 21/03/2023 | 0.20             | 1.00                 | Low        | 6.94      | 8060       | 8.46 | 42.6    | 242.6              | 18.9      | 5239       | Clear water, low turbidity  |
| E2          | Offsite  | SW012       | 303443  | 5805592   | 2/08/2023  | 0.15             | 0.30                 | Low        | 9.45      | 4564       | 7.85 | 74.5    | 274.5              | 13.0      | 2967       | Clear to slight brown, low turbidity, no odour or sheen, foam on top of water |
| E1          | Offsite  | SW013       | 303155  | 5805844   | 21/03/2023 | 0.10             | 0.20                 | Stagnant   | 5.86      | 9114       | 8.26 | 31.2    | 231.2              | 19.8      | 5924       | Cloudy water, low turbidity, acid sulfate smell                               |
| E2          | Offsite  | SW013       | 303155  | 5805844   | 2/08/2023  | 0.30             | 0.60                 | Low        | 8.31      | 4545       | 7.61 | 105.4   | 305.4              | 13.1      | 2954       | Clear, low turbidity, no odour or sheen                                       |
| E1          | Offsite  | SW015       | 303861  | 5807563   | 20/03/2023 | 0.20             | 0.30                 | Medium     | 6.15      | 8080       | 7.88 | 129.1   | 329.1              | 20.5      | 5252       | Clear water, low turbidity  |
| E2          | Offsite  | SW015       | 303861  | 5807563   | 3/08/2023  | 0.10             | 0.30                 | Medium     | 7.15      | 2605       | 7.45 | 74.4    | 274.4              | 12.8      | 1693       | Clear, low turbidity, no odour or sheen                                       |
| E1          | Offsite  | SW020       | 302904  | 5805750   | 21/03/2023 | 0.30             | 0.50                 | Low        | 7.27      | 8565       | 8.24 | 12.3    | 212.3              | 17.9      | 5567       | Clear water, low turbidity  |
| E2          | Offsite  | SW020       | 302904  | 5805750   | 2/08/2023  | 0.30             | 0.50                 | Low        | 8.36      | 4250       | 7.60 | 95.5    | 295.5              | 11.1      | 2763       | Clear to slight brown, low turbidity, no odour or sheen                       |
| E1          | Offsite  | SW024       | 303647  | 5804612   | 21/03/2023 | 0.10             | 0.30                 | Low        | 7.60      | 8171       | 8.52 | 76.2    | 276.2              | 18.4      | 5311       | Clear water, low turbidity  |
| E2          | Offsite  | SW024       | 303647  | 5804612   | 3/08/2023  | 0.20             | 0.40                 | Low        | 9.66      | 4252       | 7.90 | 75.8    | 275.8              | 11.1      | 2764       | Brown, low turbidity, no odour or sheen                                       |
| E1          | Offsite  | SW027       | 301132  | 5806803   | 20/03/2023 | 0.20             | 0.30                 | Low        | 1.43      | 190        | 4.40 | 122.3   | 322.3              | 19.8      | 123        | Cloudy water, low turbidity   |
| E2          | Offsite  | SW027       | 301132  | 5806803   | 2/08/2023  | 0.30             | 0.60                 | Stagnant   | 2.55      | 168        | 6.35 | 90.3    | 290.3              | 13.8      | 109        | Clear, low turbidity, no odour or sheen                                       |
| E1          | Offsite  | SW030       | 301166  | 5806698   | 20/03/2023 | 0.20             | 0.50                 | Low        | 5.71      | 1119       | 7.45 | 131.7   | 331.7              | 21.3      | 727        | Clear water, low turbidity  |
| E2          | Offsite  | SW030       | 301166  | 5806698   | 2/08/2023  | 0.30             | 1.00                 | Stagnant   | 5.90      | 407        | 6.92 | 78.9    | 278.9              | 13.8      | 265        | Clear, low turbidity, no odour or sheen                                       |
| E1          | Onsite   | SW034       | 302803  | 5806795   | 20/03/2023 | 0.00             | 0.05                 | Low        | 6.88      | 1722       | 8.64 | 65.9    | 265.9              | 16.0      | 1119       | Cloudy yellow brown water, Low turbidity,                                     |
| E2          | Onsite   | SW034       | 302803  | 5806795   | 2/08/2023  | 0.05             | 0.10                 | Stagnant   | 6.44      | 380        | 7.82 | 76.4    | 276.4              | 13.6      | 247        | Clear, low turbidity, no odour or sheen, minor algae                          |
| E2          | Offsite  | SW035       | 301084  | 5806339   | -          | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Not sampled due to access restrictions  |
| E2          | Offsite  | SW036       | 301285  | 5806440   | -          | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Not sampled due to access restrictions  |
| E2          | Offsite  | SW037       | 301638  | 5806186   | -          | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Not sampled due to access restrictions  |
| E2          | Offsite  | SW038       | 301348  | 5806121   | -          | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Not sampled due to access restrictions  |
| E2          | Offsite  | SW039       | 301175  | 5806159   | -          | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Not sampled due to access restrictions  |
| E1          | Offsite  | SW041       | 300674  | 5805437   | 21/03/2023 | 0.10             | 1.00                 | Low        | 10.13     | 10732      | 8.72 | 77.3    | 277.3              | 18.9      | 6976       | Clear water, low turbidity  |
| E2          | Offsite  | SW041       | 300674  | 5805437   | 2/08/2023  | 0.20             | 0.50                 | High       | 8.72      | 5062       | 8.02 | -18.1   | 181.9              | 14.1      | 3290       | Clear, low turbidity, no odour or sheen, foam on top of water                 |
| E1          | Offsite  | SW042       | 301587  | 5805948   | -          | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Dry   |
| E2          | Offsite  | SW042       | 301587  | 5805948   | 3/08/2023  | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Dry   |
| E2 Resample | Offsite  | SW042       | 301587  | 5805948   | 17/10/2023 | 0.10             | 0.20                 | Stagnant   | 6.89      | 311        | 7.41 | 8.2     | 208.2              | 13.3      | 202        | Cloudy brown, no odour or sheen   |
| E1          | Onsite   | SW043       | 302258  | 5806401   | 20/03/2023 | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Dry   |
| E2          | Onsite   | SW043       | 302258  | 5806401   | 2/08/2023  | 0.05             | 0.20                 | Stagnant   | 13.21     | 275        | 9.97 | -37.0   | 163.0              | 15.7      | 179        | Clear, low turbidity, no odour or sheen                                       |
| E1          | Offsite  | SW045       | 300494  | 5807011   | 20/03/2023 | 0.05             | 0.10                 | Low        | 4.74      | 248        | 7.32 | 133.9   | 333.9              | 16.1      | 161        | Clear water, low turbidity  |
| E2          | Offsite  | SW045       | 300494  | 5807011   | 2/08/2023  | 0.05             | 0.20                 | Stagnant   | 6.19      | 162        | 6.88 | -14.8   | 185.2              | 13.2      | 105        | Black cloudy, low turbidity, no odour or sheen                                |
| E1          | Offsite  | SW049       | 304293  | 5804432.1 | 21/03/2023 | 0.10             | 1.00                 | Low        | 7.06      | 8355       | 8.52 | 55.3    | 133.9              | 16.1      | 5431       | Clear water, low turbidity  |

| Event | Location | Location ID | Easting | Northing  | Date       | Sample Depth (m) | Water Body Depth (m) | Flow (m/s) | DO (mg/L) | EC (µS/cm) | pH   | Eh (mV) | Corrected ORP (mV) | Temp (°C) | TDS (mg/L) | Observations                            |
|-------|----------|-------------|---------|-----------|------------|------------------|----------------------|------------|-----------|------------|------|---------|--------------------|-----------|------------|---|
| E2    | Offsite  | SW049       | 304293  | 5804432.1 | 3/08/2023  | 0.30             | 0.60                 | Low        | 10.28     | 4298       | 8.05 | 75.8    | 275.8              | 14.7      | 2794       | Clear, low turbidity, no odour or sheen |
| E1    | Offsite  | SW052       | 302743  | 5803091   | 21/03/2023 | 0.10             | 2.00                 | Low        | 5.59      | 17664      | 8.66 | 61.9    | 261.9              | 18.4      | 11482      | Clear water, low turbidity              |
| E2    | Offsite  | SW052       | 302743  | 5803091   | 3/08/2023  | 0.30             | 1.00                 | Stagnant   | 9.06      | 8729       | 8.53 | -6.8    | 193.2              | 13.0      | 5674       | Clear, low turbidity, no odour or sheen |
| E1    | Offsite  | SW073       | 302547  | 5805707   | 21/03/2023 | 0.01             | 0.05                 | Low        | 0.49      | 14940      | 7.57 | -128.7  | 71.3               | 15.5      | 9711       | Black water colour, medium turbidity    |
| E2    | Offsite  | SW073       | 302547  | 5805707   | 2/08/2023  | 0.30             | 0.50                 | Low        | 7.63      | 4162       | 7.48 | 103.3   | 303.3              | 11.2      | 2705       | Brown, low turbidity, no odour or sheen |
| E1    | Offsite  | SW078       | 304786  | 5803490   | 21/03/2023 | 0.10             | 0.50                 | Low        | 6.97      | 8654       | 8.73 | 68.1    | 268.1              | 18.0      | 5625       | Clear water, low turbidity              |
| E2    | Offsite  | SW078       | 304786  | 5803490   | 3/08/2023  | 0.30             | 0.50                 | Low        | 8.88      | 4856       | 8.14 | 65.4    | 265.4              | 12.0      | 3156       | Clear, low turbidity, no odour or sheen |
| E2    | Offsite  | SW083       | 300919  | 5806203   | -          | -                | -                    | -          | -         | -          | -    | -       | -                  | -         | -          | Not sampled due to access restrictions  |
| E1    | Offsite  | SW085       | 303520  | 5802808   | 21/03/2023 | 0.10             | 2.00                 | Stagnant   | 4.53      | 21094      | 8.48 | 68.7    | 268.7              | 18.8      | 13711      | Clear water, low turbidity              |
| E2    | Offsite  | SW085       | 303520  | 5802808   | 3/08/2023  | 0.30             | 1.00                 | High       | 6.09      | 13852      | 8.42 | -10.1   | 189.9              | 12.9      | 9004       | Clear, low turbidity, no odour or sheen |
| E1    | Offsite  | SW086       | 303903  | 5803116   | 21/03/2023 | 0.50             | 0.10                 | Low        | 5.44      | 21609      | 8.55 | 56.9    | 256.9              | 18.8      | 14046      | Clear water, low turbidity              |
| E2    | Offsite  | SW086       | 303903  | 5803116   | 3/08/2023  | 0.20             | 0.50                 | Medium     | 6.00      | 14803      | 8.41 | -6.1    | 193.9              | 13.0      | 9622       | Clear, low turbidity, no odour or sheen |
| E1    | Offsite  | SW087       | 304289  | 5803068   | 21/03/2023 | 0.10             | 2.00                 | Stagnant   | 8.15      | 23391      | 9.01 | 67.8    | 267.8              | 19.8      | 15204      | Clear water, low turbidity              |
| E2    | Offsite  | SW087       | 304289  | 5803068   | 3/08/2023  | 0.20             | 0.40                 | Stagnant   | 7.85      | 14464      | 8.49 | 4.7     | 204.7              | 12.5      | 9402       | Clear, low turbidity, no odour or sheen |
| E1    | Offsite  | SW088       | 304726  | 5802685   | 21/03/2023 | 0.02             | 1.00                 | Low        | 6.55      | 23609      | 8.72 | 76.7    | 276.7              | 18.6      | 15346      | Clear water, low turbidity              |
| E2    | Offsite  | SW088       | 304726  | 5802685   | 3/08/2023  | 0.20             | 0.50                 | Stagnant   | 8.28      | 13943      | 8.51 | 8.6     | 208.6              | 11.8      | 9063       | Clear, low turbidity, no odour or sheen |

Notes:

NM: Not Measured

': Data not available

TDS = EC\*0.65

Corrected Redox = EC + 200, in accordance with equipment manufacturer guidance.

Stagnant water = no flow observed



|   |      |          |             |                | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                     |                                      |                                    |   |  |  |
|---|------|----------|-------------|----------------|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|--------------------------------------|------------------------------------|---|--|--|
|   |      |          |             |                | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTriDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonylamido)ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) |
|   |      |          |             |                | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              | µg/L                                | µg/L                                 | µg/L                               | µg/L  | µg/L   | µg/L   |
| LOR   |      |          |             |                | 0.01                                 | 0.01                      | 0.01                  | 0.01                                 | 0.01                                   | 0.01                                  | 0.01                                   | 0.05                                | 0.01                          | 0.01                            | 0.01                           | 0.01                            | 0.01                          | 0.01                          | 0.01                              | 0.01                              | 0.01                                | 0.01                                 | 0.02                               | 0.05  | 0.05   | 0.05   |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |      |          |             |                |                                      | 10                        | 2                     |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                     |                                      |                                    |   |  |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |      |          |             |                | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                     |                                      |                                    |   |  |  |
| Location Code                                   | Date | Field ID | Sample Type | Lab Report No. | 2.9                                  | 0.63                      | 12.9                  | 2.5                                  | 2.8                                    | 10                                    | 1.2                                    | <0.01                               | 0.91                          | 1.7                             | 6.1                            | 0.49                            | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01                               | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  |



Table with 24 columns: Perfluorooctane sulfonic acid (PFOS), Perfluorooctanoate (PFOA), Sum of PFHxS and PFOS, Perfluorobutane sulfonic acid (PFBS), Perfluoropentane sulfonic acid (PFPeS), Perfluorohexane sulfonic acid (PFHxS), Perfluorooheptane sulfonic acid (PFHpS), Perfluorodecanesulfonic acid (PFDS), Perfluorobutanoic acid (PFBA), Perfluoropentanoic acid (PFPeA), Perfluorohexanoic acid (PFHxA), Perfluorooheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA), Perfluorodecanoic acid (PFDA), Perfluoroundecanoic acid (PFUnDA), Perfluorododecanoic acid (PFDoDA), Perfluorotridecanoic acid (PFTriDA), Perfluorotetradecanoic acid (PFTeDA), Perfluorooctane sulfonamide (FOSA), N-Methylperfluorooctane sulfonamide (MeFOSA), 2-(N-methylperfluoro-1-octane sulfonamido)ethanol (N-MeFOSE), N-Ethylperfluorooctane sulfonamide (EtFOSA). Rows include LOR, PFAS NEMP 2.0 Table 1 Health Recreational Water, and PFAS NEMP 2.0 Table 5 Interim marine 95%.

Main analytical results table with columns: Location Code, Date, Field ID, Sample Type, Lab Report No., and 24 chemical parameters. Rows are grouped by location codes MW207, MW208, MW211, MW217, MW228, and MW229.

|   | Perfluorocarbons                                    |   |  |   |                                       |                                       |   |             |   |  |
|---|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|--|
|   | N-Ethyl perfluorooctane sulfonamideethanol (EtFOSE) | N-Methyl perfluorooctane sulfonamideacetic acid (MeFOSAA) | N-Ethyl perfluorooctane sulfonamideacetic acid (EtFOSAA) | 4:2 Fluorotelomer sulfonic acid (4:2 FTS) | 6:2 Fluorotelomer sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |  |
|   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  |  |
| LOR   | 0.05  | 0.02  | 0.02   | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01        | 0.01  |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |   |   |  |   |                                       |                                       |   |             |   |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |   |   |  |   |                                       |                                       |   |             |   |  |

| Location Code | Date        | Field ID          | Sample Type       | Lab Report No. | N-Ethyl perfluorooctane sulfonamideethanol (EtFOSE) | N-Methyl perfluorooctane sulfonamideacetic acid (MeFOSAA) | N-Ethyl perfluorooctane sulfonamideacetic acid (EtFOSAA) | 4:2 Fluorotelomer sulfonic acid (4:2 FTS) | 6:2 Fluorotelomer sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |   |
|---------------|-------------|-------------------|-------------------|----------------|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|---|
| MW102         | 05 Feb 2019 | 0927_MW102_190205 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 24.53       | 17.86                                       |   |
|               | 16 Mar 2023 | 0927_MW102_230316 | Normal            | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 24.0        | -   |   |
|               |             | 0927_QC101_230316 | Field_D           | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 24.1        | -   |   |
|               |             | 0927_QC201_230316 | Interlab_D        | 973583         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 28.51       | 21.82                                       |   |
|               | 01 Aug 2023 | 0927_MW102_230801 | Normal            | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 24.4        | -   |   |
| MW103         | 05 Feb 2019 | 0927_MW103_190205 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 20.08       | 14.27                                       |   |
|               | 16 Mar 2023 | 0927_MW103_230316 | Normal            | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 26.1        | -   |   |
|               | 02 Aug 2023 | 0927_MW103_230802 | Normal            | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 32.6        | -   |   |
| MW105         | 05 Feb 2019 | 0927_MW105_190205 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 78.24       | 64.2  |   |
|               | 16 Mar 2023 | 0927_MW105_230316 | Normal            | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 290         | -   |   |
|               | 02 Aug 2023 | 0927_MW105_230802 | Normal            | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 205         | -   |   |
| MW107         | 04 Feb 2019 | 0927_MW107_190204 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 7.25        | 4.39  |   |
|               | 16 Mar 2023 | 0927_MW107_230316 | Normal            | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 7.92        | -   |   |
|               | 01 Aug 2023 | 0927_MW107_230801 | Normal            | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 8.59        | -   |   |
| MW109         | 04 Feb 2019 | 0927_MW109_190204 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.34        | 0.3   |   |
|               | 18 Jul 2019 | 0927_MW109_190718 | Normal            | 666870         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.37        | 0.33  |   |
|               | 17 Mar 2023 | 0927_MW109_230317 | Normal            | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.97        | -   |   |
|               | 01 Aug 2023 | 0927_MW109_230801 | Normal            | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.05        | -   |   |
| MW110         | 04 Feb 2019 | 0927_MW110_190204 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 104.3       | 77.6  |   |
|               | 31 Oct 2019 | 0927_MW110_191031 | Normal            | 686044         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 133.77      | 110.3                                       |   |
|               |             | 0927_QC101_191031 | Field_D           | 686044         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 122.39      | 98.5  |   |
|               |             | 0927_QC201_191031 | Interlab_D        | EM1918707      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 165         | -   |   |
|               |             | 16 Mar 2023       | 0927_MW110_230316 | Normal         | EM2304822   | <0.05   | <0.02  | <0.02                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 118   | - |
|               | 02 Aug 2023 | 0927_MW110_230802 | Normal            | EM2314161      | <0.08   | <0.03   | <0.03  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 116         | -   |   |
| MW115         | 04 Feb 2019 | 0927_MW115_190204 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | 0.01  |   |
|               | 16 Mar 2023 | 0927_MW115_230316 | Normal            | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.03        | -   |   |
|               | 02 Aug 2023 | 0927_MW115_230802 | Normal            | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.01        | -   |   |
| MW117         | 05 Feb 2019 | 0927_MW117_190205 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 128.42      | 80.1  |   |
|               | 16 Mar 2023 | 0927_MW117_230316 | Normal            | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 114         | -   |   |
|               | 01 Aug 2023 | 0927_MW117_230801 | Normal            | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 63.2        | -   |   |
| MW118         | 05 Feb 2019 | 0927_MW118_190205 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 40.96       | 30.55                                       |   |
|               |             | 0927_QC124_190205 | Field_D           | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 46.49       | 35.53                                       |   |
|               |             | 0927_QC224_190205 | Interlab_D        | EM1901728      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 43.8        | -   |   |
|               |             | 16 Mar 2023       | 0927_MW118_230316 | Normal         | EM2304822   | <0.05   | <0.02  | <0.02                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 74.5  | - |
|               |             | 01 Aug 2023       | 0927_MW118_230801 | Normal         | EM2314161   | <0.05   | <0.02  | <0.02                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 78.8  | - |
|               |             | 0927_QC102_230801 | Field_D           | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 63.9        | -   |   |
|               |             | 0927_QC202_230801 | Interlab_D        | 1014137        | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 75.29       | 58  |   |
| MW120         | 05 Feb 2019 | 0927_MW120_190205 | Normal            | 639585         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 5.14        | 3.49  |   |
|               | 16 Mar 2023 | 0927_MW120_230316 | Normal            | EM2304822      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 17.8        | -   |   |
|               | 02 Aug 2023 | 0927_MW120_230802 | Normal            | EM2314161      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 12.0        | -   |   |
| MW121         | 24 Jan 2020 | 0927_MW121_200124 | Normal            | 698820         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.73        | 0.51  |   |
|               | 17 Mar 2023 | 0927_MW121_230317 | Normal            | EM2304823      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.06        | -   |   |
|               | 21 Mar 2023 | 0927_MW121_230317 | Normal            | EM2307379      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.06        | -   |   |
|               | 02 Aug 2023 | 0927_MW121_230802 | Normal            | EM2314153-AC   | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.15        | -   |   |
| MW123         | 24 Jan 2020 | 0927_MW123_200124 | Normal            | 698820         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 2.54        | 1.86  |   |
|               | 17 Mar 2023 | 0927_MW123_230317 | Normal            | EM2304823      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 3.53        | -   |   |
|               | 21 Mar 2023 | 0927_MW123_230317 | Normal            | EM2307379      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 3.53        | -   |   |
|               | 02 Aug 2023 | 0927_MW123_230802 | Normal            | EM2314153-AC   | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 3.66        | -   |   |
| MW124         | 18 Jul 2019 | 0927_MW124_190718 | Normal            | 666870         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 4.69        | 4.16  |   |
|               | 17 Mar 2023 | 0927_MW124_230317 | Normal            | EM2304823      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.90        | -   |   |
|               | 01 Aug 2023 | 0927_MW124_230801 | Normal            | EM2314153-AC   | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 3.22        | -   |   |
| MW126         | 17 Jul 2019 | 0927_MW126_190717 | Normal            | 666870         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.43        | 0.29  |   |
|               | 17 Mar 2023 | 0927_MW126_230317 | Normal            | EM2304823      | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.64        | -   |   |
|               | 02 Aug 2023 | 0927_MW126_230802 | Normal            | EM2314153-AC   | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.81        | -   |   |
| MW129         | 19 Jul 2019 | 0927_MW129_190719 | Normal            | 666870         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.22        | 0.9   |   |
| MW130         | 19 Jul 2019 | 0927_MW130_190719 | Normal            | 666870         | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 32.79       | 15.97                                       |   |

|   |             |                     |             |                | Perfluorocarbons                                   |   |   |   |                                       |                                       |   |             |   |  |
|---|-------------|---------------------|-------------|----------------|--|---|---|---|---------------------------------------|---------------------------------------|---|-------------|---|--|
|   |             |                     |             |                | N-Ethyl perfluorooctane sulfonamideethanol (EFOSE) | N-Methyl perfluorooctane sulfonamideacetic acid (MeFOSAA) | N-Ethyl perfluorooctane sulfonamideacetic acid (EFOFAA) | 4:2 Fluorotelomer sulfonic acid (4:2 FTS) | 6:2 Fluorotelomer sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |  |
|   |             |                     |             |                | µg/L   | µg/L  | µg/L  | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  |  |
| LOR   |             |                     |             |                | 0.05   | 0.02  | 0.02  | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01        | 0.01  |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |             |                     |             |                |  |   |   |   |                                       |                                       |   |             |   |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |             |                     |             |                |  |   |   |   |                                       |                                       |   |             |   |  |
| Location Code                                   | Date        | Field ID            | Sample Type | Lab Report No. |  |   |   |   |                                       |                                       |   |             |   |  |
|   |             | 0927_QC134_190719   | Field_D     | 666870         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 30.53       | 13.53                                       |  |
|   |             | 0927_QC234_190719   | Interlab_D  | EM1911601      | <0.12  | <0.05   | <0.05   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 39.4        | -   |  |
|   | 17 Mar 2023 | 0927_MW130_230317   | Normal      | EM2304823      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 110         | -   |  |
|   | 02 Aug 2023 | 0927_MW130_230802   | Normal      | EM2314153-AC   | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 64.5        | -   |  |
| MW131   | 19 Jul 2019 | 0927_MW131_190719   | Normal      | 666870         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 24.23       | 12.45                                       |  |
|   |             | 0927_QC135_190719   | Field_D     | 666870         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 24.23       | 12  |  |
|   |             | 0927_QC235_190719   | Interlab_D  | EM1911601      | <0.12  | <0.05   | <0.05   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 27.4        | -   |  |
|   | 17 Mar 2023 | 0927_MW131_230317   | Normal      | EM2304823      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 166         | -   |  |
| MW137   | 01 Aug 2023 | 0927_MW131_230801   | Normal      | EM2314153-AC   | <0.08  | <0.03   | <0.03   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 278         | -   |  |
|   | 16 Jul 2019 | 0927_MW137_190716   | Normal      | 666870         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.89        | 0.32  |  |
|   | 22 Mar 2023 | 0927_MW137_230322   | Normal      | EM2305196      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.30        | -   |  |
| MW138   | 01 Aug 2023 | 0927_MW137_230801   | Normal      | EM2314153-AC   | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.62        | -   |  |
|   | 24 Jan 2020 | 0927_MW138_200124   | Normal      | 698820         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 11.27       | 8.3   |  |
|   |             | 0927_QC101_200124   | Field_D     | 698820         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 9.78        | 6.88  |  |
|   |             | 0927_QC201_200124   | Interlab_D  | EM2001369      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 12.7        | -   |  |
| MW139   | 16 Mar 2023 | 0927_MW138_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 12.6        | -   |  |
|   | 01 Aug 2023 | 0927_MW138_230801   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 22.9        | -   |  |
|   | 24 Jan 2020 | 0927_MW139_200124   | Normal      | 698820         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 113.38      | 88.8  |  |
| MW140   | 16 Mar 2023 | 0927_MW139_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 31.8        | -   |  |
|   | 01 Aug 2023 | 0927_MW139_230801   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 58.2        | -   |  |
|   | 24 Jan 2020 | 0927_MW140_200124   | Normal      | 698820         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.615       | 1.21  |  |
| MW144   | 16 Mar 2023 | 0927_MW140_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.31        | -   |  |
|   | 01 Aug 2023 | 0927_MW140_230801   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.53        | -   |  |
|   | 16 Aug 2018 | 0927_GW130/1_180816 | Normal      | 613048         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 2.71        | 2.33  |  |
| MW146   | 16 Mar 2023 | 0927_MW144_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.62        | -   |  |
|   | 01 Aug 2023 | 0927_MW144_230801   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.71        | -   |  |
|   | 16 Aug 2018 | 0927_GW130/3_180816 | Normal      | 613048         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 2.79        | 2.43  |  |
|   | 16 Mar 2023 | 0927_MW146_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.73        | -   |  |
| MW152   | 01 Aug 2023 | 0927_MW146_230801   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.72        | -   |  |
|   | 19 May 2016 | 0927-GW 155/6       | Normal      | 501516         | -  | -   | -   | <0.01                                     | <0.05                                 | 0.01                                  | -   | -           | -   |  |
|   | 17 Aug 2018 | 0927_GW155/6_180817 | Normal      | 613048         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | 0.06                                  | <0.01                                       | 34.43       | 27.8  |  |
|   | 17 Mar 2023 | 0927_MW152_230317   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 30.4        | -   |  |
| MW155   | 01 Aug 2023 | 0927_MW152_230801   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 14.2        | -   |  |
|   | 19 May 2016 | 0927-GW2/2          | Normal      | 501516         | -  | -   | -   | <0.01                                     | 0.11                                  | 0.08                                  | -   | -           | -   |  |
|   | 13 Aug 2018 | 0927_GW2/2_180813   | Normal      | 612558         | <0.05  | <0.05   | <0.05   | <0.01                                     | 0.12                                  | 0.16                                  | <0.01                                       | 10          | 6.98  |  |
|   |             | 0927_QC107_180813   | Field_D     | 612558         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | 0.23                                  | <0.01                                       | 10.33       | 6.64  |  |
|   |             | 0927_QC207_180813   | Interlab_D  | EM1813168      | <0.05  | <0.02   | <0.02   | <0.05                                     | 0.12                                  | 0.15                                  | <0.05                                       | 10.1        | -   |  |
| MW163   | 16 Mar 2023 | 0927_MW155_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | 0.10                                  | 0.27                                  | <0.05                                       | 5.69        | -   |  |
|   | 01 Aug 2023 | 0927_MW155_230801   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | 0.07                                  | 0.12                                  | <0.05                                       | 3.16        | -   |  |
|   | 19 May 2016 | 0927-GW34/1         | Normal      | 501516         | -  | -   | -   | <0.01                                     | <0.05                                 | <0.01                                 | -   | -           | -   |  |
|   | 03 Aug 2018 | 0927_GW34/1_180803  | Normal      | 610856         | <0.2   | <0.2  | <0.2  | <0.2                                      | <0.2                                  | <0.2                                  | <0.2  | 1,842.54    | 1,400                                       |  |
| MW182   | 16 Mar 2023 | 0927_MW163_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1,030       | -   |  |
|   | 01 Aug 2023 | 0927_MW163_230801   | Normal      | EM2314161      | <0.09  | <0.04   | <0.04   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1,010       | -   |  |
|   | 16 Aug 2018 | 0927_GW7/15_180816  | Normal      | 613048         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 8.78        | 5.91  |  |
|   | 16 Mar 2023 | 0927_MW182_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 4.93        | -   |  |
| MW185   | 01 Aug 2023 | 0927_MW182_230801   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.01                                       | 3.84        | -   |  |
|   | 19 May 2016 | 0927-GW7/5          | Normal      | 501516         | <0.05  | <0.02   | <0.02   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | -           | -   |  |
|   | 13 Aug 2018 | 0927_GW7/5_180813   | Normal      | 612558         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 4.9         | 4.07  |  |
|   | 16 Mar 2023 | 0927_MW185_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 3.34        | -   |  |
| MW192   | 02 Aug 2023 | 0927_MW185_230802   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 3.10        | -   |  |
|   | 19 May 2016 | 0927-GW 81/3        | Normal      | 501516         | -  | -   | -   | <0.01                                     | <0.05                                 | <0.01                                 | -   | -           | -   |  |
|   | 09 Aug 2018 | 0927_GW81/3_180809  | Normal      | 611851         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 16.35       | 12.41                                       |  |
|   | 16 Mar 2023 | 0927_MW192_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 5.69        | -   |  |
| MW200   | 02 Aug 2023 | 0927_MW192_230802   | Normal      | EM2314161      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 3.27        | -   |  |
|   | 14 Aug 2018 | 0927_GW90/2_180814  | Normal      | 612558         | <0.05  | <0.05   | <0.05   | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 32.77       | 24.21                                       |  |
|   | 16 Mar 2023 | 0927_MW200_230316   | Normal      | EM2304822      | <0.05  | <0.02   | <0.02   | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 16.6        | -   |  |

|   | Perfluorocarbons                                    |   |  |   |                                       |                                       |   |             |   |  |
|---|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|--|
|   | N-Ethyl perfluorooctane sulfonamideethanol (EtFOSE) | N-Methyl perfluorooctane sulfonamideacetic acid (MeFOSAA) | N-Ethyl perfluorooctane sulfonamideacetic acid (EtFOSAA) | 4:2 Fluorotelomer sulfonic acid (4:2 FTS) | 6:2 Fluorotelomer Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |  |
|   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  |  |
| LOR   | 0.05  | 0.02  | 0.02   | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01        | 0.01  |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |   |   |  |   |                                       |                                       |   |             |   |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |   |   |  |   |                                       |                                       |   |             |   |  |

| Location Code | Date        | Field ID           | Sample Type | Lab Report No. | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 17.2   | -     |
|---------------|-------------|--------------------|-------------|----------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| MW207         |             | 0927_QC100_230316  | Field_D     | EM2304822      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 17.2   | -     |
|               |             | 0927_QC200_230316  | Interlab_D  | 973583         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 21.89  | 16.18 |
|               | 01 Aug 2023 | 0927_MW200_230801  | Normal      | EM2314161      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 16.8   | -     |
|               | 06 Aug 2018 | 0927_GWAM/4_180806 | Normal      | 611486         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 29.67  | 23.74 |
|               | 16 Mar 2023 | 0927_MW207_230316  | Normal      | EM2304822      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 26.8   | -     |
|               | 01 Aug 2023 | 0927_MW207_230801  | Normal      | EM2314161      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 25.3   | -     |
| MW208         |             | 0927_QC100_230801  | Field_D     | EM2314161      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 24.1   | -     |
|               |             | 0927_QC200_230801  | Interlab_D  | 1014137        | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 20.63  | 16.7  |
|               | 19 May 2016 | 0927-GWAM/5        | Normal      | 501516         | -     | -     | -     | <0.01 | <0.05 | <0.01 | -     | -      | -     |
|               | 03 Aug 2018 | 0927_GWAM/5_180803 | Normal      | 610856         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 98.99  | 88    |
|               | 16 Mar 2023 | 0927_MW208_230316  | Normal      | EM2304822      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 228    | -     |
|               |             | 0927_QC102_230316  | Field_D     | EM2304822      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 215    | -     |
| MW211         |             | 0927_QC202_230316  | Interlab_D  | 973583         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 348.99 | 295.3 |
|               | 01 Aug 2023 | 0927_MW208_230801  | Normal      | EM2314161      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 95.7   | -     |
|               |             | 0927_QC101_230801  | Field_D     | EM2314161      | <0.08 | <0.03 | <0.03 | <0.05 | <0.05 | <0.05 | <0.05 | 70.1   | -     |
|               |             | 0927_QC201_230801  | Interlab_D  | 1014137        | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 83.06  | 72.2  |
|               | 15 Aug 2018 | 0927_GWB/2_180815  | Normal      | 612558         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 0.75   | 0.49  |
|               | 16 Mar 2023 | 0927_MW211_230316  | Normal      | EM2304822      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 0.78   | -     |
| MW217         |             | 0927_QC103_230316  | Field_D     | EM2304822      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 0.77   | -     |
|               |             | 0927_QC203_230316  | Interlab_D  | 973583         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 1.16   | 0.77  |
|               | 01 Aug 2023 | 0927_MW211_230801  | Normal      | EM2314161      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 0.81   | -     |
|               |             | 0927_QC103_230801  | Field_D     | EM2314161      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 0.74   | -     |
|               |             | 0927_QC203_230801  | Interlab_D  | 1014137        | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 0.87   | 0.6   |
|               | 16 Aug 2018 | 0927_GWGA01_180816 | Normal      | 613048         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 0.33   | 0.24  |
| MW228         | 17 Mar 2023 | 0927_MW217_230317  | Normal      | EM2304822      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 0.12   | -     |
|               | 01 Aug 2023 | 0927_MW217_230801  | Normal      | EM2314161      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 0.09   | -     |
|               | 10 Mar 2021 | 0927_MW228_210310  | Normal      | 779659         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 24.4   | 18.78 |
| MW229         | 17 Mar 2023 | 0927_MW228_230317  | Normal      | EM2304823      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 5.63   | -     |
|               | 21 Mar 2023 | 0927_MW228_230317  | Normal      | EM2307379      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 5.63   | -     |
|               | 02 Aug 2023 | 0927_MW228_230802  | Normal      | EM2314153-AC   | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 12.5   | -     |
|               | 10 Mar 2021 | 0927_MW229_210310  | Normal      | 779659         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 2.87   | 2.37  |
|               |             | 0927_QC100_210310  | Field_D     | 779659         | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 2.78   | 2.29  |
|               |             | 0927_QC200_210310  | Interlab_D  | EM2104214      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 1.99   | -     |
| MW229         | 17 Mar 2023 | 0927_MW229_230317  | Normal      | EM2304823      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 2.30   | -     |
|               | 21 Mar 2023 | 0927_MW229_230317  | Normal      | EM2307379      | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 2.30   | -     |
|               | 01 Aug 2023 | 0927_MW229_230801  | Normal      | EM2314153-AC   | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 2.55   | -     |

|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|   | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              |
| LOR   | 0.0003                               | 0.0005                    | 0.0003                | 0.0005                               | 0.0005                                 | 0.0005                                | 0.0005                                 | 0.0005                              | 0.002                         | 0.0005                          | 0.0005                         | 0.0005                          | 0.0005                        | 0.0005                        | 0.0005                            | 0.0005                            |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                     |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |

| Location Code     | Date              | Field ID          | Sample Type  | Lab Report No. | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|-------------------|-------------------|-------------------|--------------|----------------|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
| SW005             | 20 Aug 2018       | 0927_SW05_180820  | Normal       | 613490         | 0.03                                 | <0.01                     | 0.05                  | <0.01                                | <0.01                                  | 0.02                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                   | 03 Jun 2019       | 0927_SW05_190603  | Normal       | 662504         | <0.01                                | <0.01                     | <0.01                 | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                   | 02 Aug 2023       | 0927_SW005_230802 | Normal       | EM2314152-AC   | 0.02                                 | <0.01                     | 0.10                  | <0.02                                | <0.02                                  | 0.08                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW006             | 20 Aug 2018       | 0927_SW06_180820  | Normal       | 613490         | 0.01                                 | <0.01                     | 0.01                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                   | 20 Mar 2023       | 0927_SW006_230320 | Normal       | EM2305194      | <0.01                                | <0.01                     | <0.01                 | <0.02                                | <0.02                                  | <0.01                                 | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                   |                   | 0927_QC104_230320 | Field_D      | EM2305194      | 0.01                                 | <0.01                     | 0.02                  | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                   |                   | 0927_QC204_230320 | Interlab_D   | 975318         | 0.01                                 | <0.01                     | 0.01                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
| 01 Aug 2023       | 0927_SW006_230801 | Normal            | EM2314152-AC | <0.01          | <0.01                                | <0.01                     | <0.02                 | <0.02                                | <0.01                                  | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             |                                   |
| SW008             | 20 Aug 2018       | 0927_SW08_180820  | Normal       | 613490         | 0.04                                 | <0.01                     | 0.04                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
| SW012             | 21 Aug 2018       | 0927_SW12_180821  | Normal       | 613490         | 0.15                                 | <0.01                     | 0.28                  | 0.02                                 | 0.02                                   | 0.13                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.04                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                   | 03 Jun 2019       | 0927_SW12_190603  | Normal       | 662504         | 0.11                                 | <0.01                     | 0.17                  | <0.01                                | <0.01                                  | 0.06                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.02                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |
|                   | 09 Jul 2020       | 0927_SW12_200709  | Normal       | 731055         | 0.094                                | 0.007                     | 0.204                 | 0.017                                | 0.019                                  | 0.11                                  | 0.004                                  | <0.001                              | 0.010                         | 0.009                           | 0.027                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |
|                   | 05 Aug 2020       | 0927_SW12_200805  | Normal       | 736375         | 0.17                                 | 0.011                     | 0.36                  | 0.027                                | 0.037                                  | 0.19                                  | 0.006                                  | <0.001                              | 0.024                         | 0.012                           | 0.042                          | 0.006                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |
|                   | 04 Nov 2020       | 0927_SW12_201104  | Normal       | 755594         | 0.11                                 | 0.011                     | 0.21                  | 0.015                                | 0.027                                  | 0.10                                  | 0.005                                  | <0.001                              | 0.010                         | 0.010                           | 0.030                          | 0.005                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |
|                   | 21 Mar 2023       | 0927_SW012_230321 | Normal       | EM2305195      | 0.10                                 | 0.01                      | 0.24                  | 0.03                                 | <0.02                                  | 0.14                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                   | 02 Aug 2023       | 0927_SW012_230802 | Normal       | EM2314151-AD   | 0.07                                 | <0.01                     | 0.15                  | <0.02                                | <0.02                                  | 0.08                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW013             | 21 Aug 2018       | 0927_SW13_180821  | Normal       | 613490         | 0.08                                 | <0.01                     | 0.13                  | <0.01                                | <0.01                                  | 0.05                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.02                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |
|                   | 17 Mar 2023       | 0927_SW013_230317 | Normal       | EM2305195      | 0.09                                 | <0.01                     | 0.24                  | 0.02                                 | <0.02                                  | 0.15                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             |                                   |
|                   | 02 Aug 2023       | 0927_SW013_230802 | Normal       | EM2314151-AD   | 0.08                                 | <0.01                     | 0.19                  | <0.02                                | <0.02                                  | 0.11                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             |                                   |
| SW015             | 21 Aug 2018       | 0927_SW15_180821  | Normal       | 613490         | 0.01                                 | <0.01                     | 0.01                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |
|                   | 03 Jun 2019       | 0927_SW15_190603  | Normal       | 662504         | <0.01                                | <0.01                     | <0.01                 | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         |                                   |                                   |
|                   | 09 Jul 2020       | 0927_SW15_200709  | Normal       | 731055         | 0.015                                | 0.004                     | 0.032                 | 0.003                                | 0.002                                  | 0.017                                 | <0.001                                 | <0.001                              | 0.008                         | 0.005                           | 0.010                          | 0.002                           | <0.001                        | <0.001                        | <0.001                            |                                   |
|                   |                   | 0927_QC102_200709 | Field_D      | 731055         | 0.015                                | 0.004                     | 0.031                 | 0.003                                | 0.002                                  | 0.016                                 | <0.001                                 | <0.001                              | 0.008                         | 0.005                           | 0.010                          | 0.002                           | <0.001                        | <0.001                        | <0.001                            |                                   |
|                   |                   | 0927_QC202_200709 | Interlab_D   | EM2012086      | 0.0142                               | 0.0062                    | 0.0348                | 0.0054                               | 0.0026                                 | 0.0206                                | <0.0008                                | <0.0008                             | 0.009                         | 0.0066                          | 0.0139                         | 0.0026                          | <0.0008                       | <0.0008                       | <0.0008                           |                                   |
|                   | 20 Mar 2023       | 0927_SW015_230320 | Normal       | EM2305195      | 0.01                                 | <0.01                     | 0.02                  | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         |                                   |                                   |
| 03 Aug 2023       | 0927_SW015_230803 | Normal            | EM2314151-AD | 0.01           | <0.01                                | 0.06                      | <0.02                 | <0.02                                | 0.05                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | <0.02                           | <0.02                          | <0.02                           | <0.02                         |                               |                                   |                                   |
| SW020             | 17 Jan 2019       | 0927_SW20_190117  | Normal       | 637379         | 0.23                                 | 0.03                      | 0.54                  | 0.05                                 | 0.05                                   | 0.31                                  | 0.02                                   | <0.01                               | <0.05                         | 0.03                            | 0.1                            | 0.02                            | <0.01                         | <0.01                         | <0.01                             |                                   |
|                   | 03 Jun 2019       | SW20_190603       | Normal       | 662504         | 0.11                                 | <0.01                     | 0.21                  | 0.01                                 | 0.01                                   | 0.1                                   | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.03                           | <0.01                           | <0.01                         | <0.01                         |                                   |                                   |
|                   |                   | 0927_SW20_200709  | Normal       | 731055         | 0.11                                 | 0.008                     | 0.28                  | 0.025                                | 0.033                                  | 0.17                                  | 0.004                                  | <0.001                              | 0.011                         | 0.010                           | 0.038                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            |                                   |
|                   |                   | 0927_QC103_200709 | Field_D      | 731055         | 0.12                                 | 0.007                     | 0.3                   | 0.025                                | 0.032                                  | 0.18                                  | 0.005                                  | <0.001                              | 0.011                         | 0.010                           | 0.037                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            |                                   |
|                   | 05 Aug 2020       | 0927_QC203_200709 | Interlab_D   | EM2012086      | 0.128                                | 0.0138                    | 0.393                 | 0.0355                               | 0.0451                                 | 0.265                                 | 0.0086                                 | <0.0016                             | 0.013                         | 0.0144                          | 0.0573                         | 0.0053                          | <0.0016                       | 0.0024                        | <0.0016                           |                                   |
|                   |                   | 0927_SW20_200805  | Normal       | 736375         | 0.11                                 | 0.007                     | 0.191                 | 0.012                                | 0.014                                  | 0.081                                 | 0.002                                  | <0.001                              | 0.024                         | 0.009                           | 0.021                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            |                                   |
|                   |                   | 0927_SW20_201104  | Normal       | 755594         | 0.12                                 | 0.012                     | 0.26                  | 0.019                                | 0.037                                  | 0.14                                  | 0.005                                  | <0.001                              | 0.012                         | 0.010                           | 0.037                          | 0.005                           | <0.001                        | 0.002                         | <0.001                            |                                   |
|                   | 04 Nov 2020       | 0927_QC101_201104 | Field_D      | 755594         | 0.11                                 | 0.012                     | 0.25                  | 0.017                                | 0.044                                  | 0.14                                  | 0.005                                  | 0.003                               | 0.013                         | 0.015                           | 0.037                          | 0.006                           | <0.001                        | 0.003                         | 0.003                             |                                   |
|                   |                   | 0927_QC201_201104 | Interlab_D   | EB2030068      | 0.112                                | 0.0128                    | 0.252                 | 0.0229                               | 0.0195                                 | 0.14                                  | 0.0065                                 | <0.0005                             | 0.008                         | 0.0146                          | 0.0399                         | 0.0058                          | 0.0013                        | 0.0029                        | <0.0005                           |                                   |
|                   |                   | 0927_SW20_230317  | Normal       | EM2305195      | 0.10                                 | 0.01                      | 0.24                  | 0.02                                 | <0.02                                  | 0.14                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         |                                   |                                   |
|                   | 21 Mar 2023       | 0927_QC105_230321 | Field_D      | EM2305194      | 0.12                                 | 0.01                      | 0.26                  | 0.02                                 | 0.02                                   | 0.14                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.04                           | <0.02                           | <0.02                         | <0.02                         |                                   |                                   |
|                   |                   | 0927_QC205_230321 | Interlab_D   | 975318         | 0.21                                 | 0.02                      | 0.47                  | 0.03                                 | 0.04                                   | 0.26                                  | 0.02                                   | <0.01                               | <0.05                         | 0.03                            | 0.06                           | 0.01                            | <0.01                         | <0.01                         |                                   |                                   |
| 0927_SW020_230802 |                   | Normal            | EM2314151-AD | 0.07           | <0.01                                | 0.17                      | <0.02                 | <0.02                                | 0.10                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | 0.02                            | <0.02                          | <0.02                           | <0.02                         |                               |                                   |                                   |

|   | Perfluorocarbons                     |                           |                      |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
|---|--------------------------------------|---------------------------|----------------------|--------------------------------------|--|---------------------------------------|--|--------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHx and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPEs) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecane sulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|   | µg/L                                 | µg/L                      | µg/L                 | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                 | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              |
| LOR   | 0.0003                               | 0.0005                    | 0.0003               | 0.0005                               | 0.0005                                 | 0.0005                                | 0.0005                                 | 0.0005                               | 0.002                         | 0.0005                          | 0.0005                         | 0.0005                          | 0.0005                        | 0.0005                        | 0.0005                            | 0.0005                            |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                    |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                      |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |

| Location Code  | Date              | Field ID             | Sample Type | Lab Report No. | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHx and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPEs) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecane sulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|----------------|-------------------|----------------------|-------------|----------------|--------------------------------------|---------------------------|----------------------|--------------------------------------|--|---------------------------------------|--|--------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
| SW024          | 17 Jan 2019       | 0927_SW24_190117     | Normal      | 637379         | 0.39                                 | 0.03                      | 0.62                 | 0.03                                 | 0.03                                   | 0.23                                  | 0.02                                   | <0.01                                | <0.05                         | 0.02                            | 0.08                           | 0.02                            | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 21 Mar 2023       | 0927_SW024_230317    | Normal      | EM2307274      | 0.10                                 | 0.01                      | 0.22                 | <0.02                                | <0.02                                  | 0.12                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 03 Aug 2023       | 0927_SW024_230803    | Normal      | EM2314151-AD   | 0.07                                 | <0.01                     | 0.15                 | <0.02                                | <0.02                                  | 0.08                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW027          | 03 Jun 2019       | SW27_190603          | Normal      | 662504         | 0.24                                 | 0.01                      | 0.32                 | 0.01                                 | <0.01                                  | 0.08                                  | <0.01                                  | <0.01                                | <0.05                         | 0.02                            | 0.04                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 20 Mar 2023       | 0927_SW027_230320    | Normal      | EM2305195      | 0.47                                 | 0.01                      | 0.57                 | <0.02                                | <0.02                                  | 0.10                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW027_230802    | Normal      | EM2314151-AD   | 0.15                                 | <0.01                     | 0.20                 | <0.02                                | <0.02                                  | 0.05                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW030          | 17 Jan 2019       | 0927_SW30_190117     | Normal      | 637379         | 0.04                                 | 0.06                      | 0.04                 | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                                | <0.05                         | 0.02                            | 0.03                           | 0.02                            | <0.01                         | 0.02                          | <0.01                             | <0.01                             |
|                | 20 Mar 2023       | 0927_SW030_230320    | Normal      | EM2305195      | 0.04                                 | 0.02                      | 0.09                 | <0.02                                | <0.02                                  | 0.05                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW030_230802    | Normal      | EM2314151-AD   | 0.01                                 | <0.01                     | 0.01                 | <0.02                                | <0.02                                  | <0.01                                 | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW034          | 03 Jun 2019       | 0927_SW34_190603     | Normal      | 662504         | 1.7                                  | 0.01                      | 1.31                 | 0.02                                 | 0.02                                   | 0.21                                  | 0.02                                   | <0.01                                | <0.05                         | 0.01                            | 0.09                           | 0.01                            | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 20 Mar 2023       | 0927_SW034_230320    | Normal      | EM2305194      | 34.6                                 | 0.96                      | 55.6                 | 2.70                                 | 3.84                                   | 21.0                                  | 0.98                                   | 0.08                                 | 0.4                           | 1.25                            | 7.39                           | 1.23                            | 0.02                          | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW034_230802    | Normal      | EM2314152-AC   | 8.02                                 | 0.14                      | 10.9                 | 0.34                                 | 0.36                                   | 2.88                                  | 0.20                                   | <0.02                                | 0.1                           | 0.19                            | 1.11                           | 0.17                            | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW035          | 06 Feb 2019       | 0927_SW35_190206     | Normal      | 639585         | 1.6                                  | 0.12                      | 2.29                 | 0.08                                 | 0.08                                   | 0.69                                  | 0.02                                   | <0.01                                | 0.11                          | 0.11                            | 0.31                           | 0.05                            | 0.01                          | 0.02                          | <0.01                             | <0.01                             |
|                | 27 Oct 2020       | 0927_SW35_201027     | Normal      | 753780         | 2.0                                  | 0.024                     | 2.11                 | 0.010                                | 0.010                                  | 0.11                                  | 0.011                                  | <0.001                               | 0.015                         | 0.013                           | 0.035                          | 0.006                           | 0.007                         | 0.031                         | <0.001                            | <0.001                            |
| SW036          | 06 Feb 2019       | 0927_SW36_190206     | Normal      | 639585         | 0.61                                 | 0.05                      | 0.92                 | 0.03                                 | 0.04                                   | 0.31                                  | 0.02                                   | <0.01                                | <0.05                         | 0.03                            | 0.1                            | 0.01                            | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                |                   | 0927_QC125_190206_SV | Field_D     | 639585         | 0.56                                 | 0.05                      | 0.84                 | 0.03                                 | 0.03                                   | 0.28                                  | 0.02                                   | <0.01                                | <0.05                         | 0.02                            | 0.1                            | 0.01                            | <0.01                         | 0.01                          | <0.01                             | <0.01                             |
|                |                   | 0927_QC225_190206_SV | Interlab_D  | EM1901728      | 0.6                                  | 0.05                      | 0.95                 | 0.04                                 | 0.04                                   | 0.35                                  | 0.02                                   | <0.02                                | <0.1                          | 0.03                            | 0.11                           | 0.04                            | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 27 Oct 2020       | 0927_SW36_201027     | Normal      | 753780         | 0.15                                 | 0.014                     | 0.202                | 0.006                                | 0.006                                  | 0.052                                 | 0.002                                  | <0.001                               | 0.008                         | 0.008                           | 0.018                          | 0.004                           | 0.002                         | 0.008                         | <0.001                            | <0.001                            |
|                |                   | 0927_QC102_201027    | Field_D     | 753780         | 0.25                                 | 0.014                     | 0.3                  | 0.006                                | 0.013                                  | 0.050                                 | 0.002                                  | <0.001                               | 0.007                         | 0.008                           | 0.016                          | 0.004                           | 0.002                         | 0.009                         | <0.001                            | <0.001                            |
|                | 0927_QC202_201027 | Interlab_D           | EB2028871   | 0.233          | 0.0158                               | 0.285                     | 0.0071               | 0.0061                               | 0.0522                                 | 0.0023                                | <0.0008                                | 0.008                                | 0.0092                        | 0.0209                          | 0.0046                         | 0.0027                          | 0.0107                        | <0.0008                       | <0.0008                           |                                   |
| SW037          | 06 Feb 2019       | 0927_SW37_190206     | Normal      | 639585         | 0.03                                 | 0.04                      | 0.03                 | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                                | <0.05                         | 0.01                            | 0.02                           | <0.01                           | <0.01                         | 0.01                          | <0.01                             | <0.01                             |
| SW038          | 06 Feb 2019       | 0927_SW38_190206     | Normal      | 639585         | 0.69                                 | 0.06                      | 0.96                 | 0.03                                 | 0.03                                   | 0.27                                  | 0.01                                   | <0.01                                | <0.05                         | 0.04                            | 0.12                           | 0.02                            | <0.01                         | 0.01                          | <0.01                             | <0.01                             |
| SW039          | 06 Feb 2019       | 0927_SW39_190206     | Normal      | 639585         | 1                                    | 0.06                      | 1.28                 | 0.03                                 | 0.03                                   | 0.28                                  | 0.01                                   | <0.01                                | 0.06                          | 0.04                            | 0.13                           | 0.02                            | <0.01                         | 0.02                          | <0.01                             | <0.01                             |
|                | 27 Oct 2020       | 0927_SW39_201027     | Normal      | 753780         | 0.23                                 | 0.013                     | 0.308                | 0.008                                | 0.009                                  | 0.078                                 | 0.003                                  | <0.001                               | 0.012                         | 0.012                           | 0.029                          | 0.005                           | 0.001                         | 0.004                         | <0.001                            | <0.001                            |
| SW041          | 03 Jun 2019       | 0927_SW41_190603     | Normal      | 662504         | 0.16                                 | <0.01                     | 0.18                 | <0.01                                | <0.01                                  | 0.02                                  | <0.01                                  | <0.01                                | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 09 Jul 2020       | 0927_SW41_200709     | Normal      | 731055         | 0.009                                | 0.004                     | 0.016                | 0.002                                | 0.001                                  | 0.007                                 | <0.001                                 | <0.001                               | 0.006                         | 0.005                           | 0.006                          | 0.002                           | <0.001                        | 0.001                         | <0.001                            | <0.001                            |
|                | 05 Aug 2020       | 0927_SW41_200805     | Normal      | 736375         | 0.008                                | 0.005                     | 0.014                | 0.002                                | <0.001                                 | 0.006                                 | <0.001                                 | <0.001                               | 0.007                         | 0.005                           | 0.007                          | 0.002                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |
|                | 17 Mar 2023       | 0927_SW041_230317    | Normal      | EM2305195      | <0.01                                | <0.01                     | 0.01                 | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW041_230802    | Normal      | EM2314151-AD   | <0.01                                | <0.01                     | <0.01                | <0.02                                | <0.02                                  | <0.01                                 | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW042          | 03 Jun 2019       | 0927_SW42_190603     | Normal      | 662504         | 0.06                                 | 0.01                      | 0.09                 | <0.01                                | <0.01                                  | 0.03                                  | <0.01                                  | <0.01                                | <0.05                         | <0.01                           | 0.01                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 09 Jul 2020       | 0927_SW42_200709     | Normal      | 731055         | 0.33                                 | 0.017                     | 0.394                | 0.008                                | 0.007                                  | 0.064                                 | 0.003                                  | <0.001                               | 0.011                         | 0.010                           | 0.026                          | 0.004                           | 0.002                         | 0.009                         | <0.001                            | <0.001                            |
|                | 05 Aug 2020       | 0927_SW42_200805     | Normal      | 736375         | 0.17                                 | 0.012                     | 0.222                | 0.006                                | 0.006                                  | 0.052                                 | 0.001                                  | <0.001                               | 0.011                         | 0.009                           | 0.02                           | 0.003                           | 0.002                         | 0.008                         | <0.001                            | 0.002                             |
|                | 17 Oct 2023       | SW042_20231017       | Normal      | EM2318509      | 0.18                                 | 0.01                      | 0.25                 | <0.02                                | <0.02                                  | 0.07                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | 0.02                           | -                               | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| QC100_20231017 |                   | Field_D              | EM2318509   | 0.17           | 0.01                                 | 0.24                      | <0.02                | <0.02                                | 0.07                                   | <0.02                                 | <0.02                                  | <0.1                                 | <0.02                         | 0.02                            | -                              | <0.02                           | <0.02                         | <0.02                         | <0.02                             |                                   |
| QC200_20231017 |                   | Interlab_D           | 1036324     | 0.16           | 0.01                                 | 0.22                      | <0.01                | <0.01                                | 0.06                                   | <0.01                                 | <0.01                                  | <0.05                                | 0.01                          | 0.02                            | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |
| SW043          | 03 Jun 2019       | 0927_SW43_190603     | Normal      | 662504         | 0.11                                 | <0.01                     | 0.15                 | <0.01                                | <0.01                                  | 0.04                                  | <0.01                                  | <0.01                                | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                |                   | 0927_QC127_190603    | Field_D     | 662504         | 0.11                                 | <0.01                     | 0.15                 | <0.01                                | <0.01                                  | 0.04                                  | <0.01                                  | <0.01                                | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                |                   | 0927_QC227_190603    | Interlab_D  | EB1916408      | 0.1                                  | <0.01                     | 0.15                 | <0.02                                | <0.02                                  | 0.05                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW043_230802    | Normal      | EM2314152-AC   | 0.09                                 | <0.01                     | 0.14                 | <0.02                                | <0.02                                  | 0.05                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |

|   | Perfluorocarbons                     |                           |                      |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |  |
|---|--------------------------------------|---------------------------|----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|--|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHx and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPEs) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |  |
|   | µg/L                                 | µg/L                      | µg/L                 | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              |  |
| LOR   | 0.0003                               | 0.0005                    | 0.0003               | 0.0005                               | 0.0005                                 | 0.0005                                | 0.0005                                 | 0.0005                              | 0.002                         | 0.0005                          | 0.0005                         | 0.0005                          | 0.0005                        | 0.0005                        | 0.0005                            | 0.0005                            |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                    |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                      |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |  |

| Location Code | Date        | Field ID          | Sample Type | Lab Report No. | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHx and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPEs) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|---------------|-------------|-------------------|-------------|----------------|--------------------------------------|---------------------------|----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
| SW045         | 08 Jul 2020 | 0927_SW45_200708  | Normal      | 731055         | 0.006                                | 0.008                     | 0.008                | <0.001                               | <0.001                                 | 0.002                                 | <0.001                                 | <0.001                              | 0.008                         | 0.003                           | 0.007                          | 0.002                           | 0.001                         | 0.005                         | <0.001                            | <0.001                            |
|               | 05 Aug 2020 | 0927_SW45_200805  | Normal      | 736375         | 0.009                                | 0.009                     | 0.01                 | <0.001                               | <0.001                                 | 0.001                                 | <0.001                                 | <0.001                              | 0.01                          | 0.003                           | 0.007                          | 0.002                           | 0.001                         | 0.008                         | <0.001                            | <0.001                            |
|               | 20 Mar 2023 | 0927_SW045_230320 | Normal      | EM2305195      | <0.01                                | 0.01                      | 0.01                 | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               | 02 Aug 2023 | 0927_SW045_230802 | Normal      | EM2314151-AD   | 0.02                                 | <0.01                     | 0.02                 | <0.02                                | <0.02                                  | <0.01                                 | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW049         | 09 Jul 2020 | 0927_SW49_200709  | Normal      | 731055         | 0.15                                 | 0.008                     | 0.32                 | 0.021                                | 0.028                                  | 0.17                                  | 0.007                                  | <0.001                              | 0.011                         | 0.011                           | 0.038                          | 0.005                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |
|               | 05 Aug 2020 | 0927_SW49_200805  | Normal      | 736375         | 0.2                                  | 0.012                     | 0.39                 | 0.025                                | 0.034                                  | 0.19                                  | 0.008                                  | <0.001                              | 0.019                         | 0.012                           | 0.039                          | 0.006                           | 0.001                         | 0.003                         | <0.001                            | <0.001                            |
|               | 04 Nov 2020 | 0927_SW49_201104  | Normal      | 755594         | 0.14                                 | 0.010                     | 0.237                | 0.011                                | 0.025                                  | 0.097                                 | 0.004                                  | <0.001                              | 0.010                         | 0.012                           | 0.024                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |
|               | 17 Mar 2023 | 0927_SW049_230317 | Normal      | EM2305195      | 0.12                                 | 0.01                      | 0.24                 | 0.03                                 | <0.02                                  | 0.12                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               | 03 Aug 2023 | 0927_SW049_230803 | Normal      | EM2314151-AD   | 0.09                                 | <0.01                     | 0.19                 | <0.02                                | <0.02                                  | 0.10                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW052         | 08 Jul 2020 | 0927_SW52_200708  | Normal      | 731055         | 0.016                                | 0.005                     | 0.028                | 0.003                                | 0.002                                  | 0.012                                 | <0.001                                 | <0.001                              | 0.007                         | 0.005                           | 0.008                          | 0.002                           | <0.001                        | 0.001                         | <0.001                            | <0.001                            |
|               | 17 Mar 2023 | 0927_SW052_230317 | Normal      | EM2305195      | 0.02                                 | <0.01                     | 0.04                 | <0.02                                | <0.02                                  | 0.02                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               | 03 Aug 2023 | 0927_SW052_230803 | Normal      | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                 | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW073         | 02 Nov 2020 | 0927_SW73_201102  | Normal      | 755594         | 0.079                                | 0.010                     | 0.189                | 0.014                                | 0.029                                  | 0.11                                  | 0.003                                  | <0.001                              | 0.012                         | 0.010                           | 0.027                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |
|               | 17 Mar 2023 | 0927_SW073_230317 | Normal      | EM2305195      | 0.43                                 | 0.02                      | 1.30                 | 0.10                                 | 0.11                                   | 0.87                                  | 0.03                                   | <0.02                               | <0.1                          | 0.02                            | 0.13                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               | 02 Aug 2023 | 0927_SW073_230802 | Normal      | EM2314151-AD   | 0.05                                 | <0.01                     | 0.15                 | <0.02                                | <0.02                                  | 0.10                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW078         | 04 Nov 2020 | 0927_SW78_201104  | Normal      | 755594         | 0.18                                 | 0.010                     | 0.28                 | 0.010                                | 0.024                                  | 0.10                                  | 0.005                                  | <0.001                              | 0.009                         | 0.013                           | 0.024                          | 0.004                           | 0.001                         | 0.004                         | <0.001                            | <0.001                            |
|               | 17 Mar 2023 | 0927_SW078_230317 | Normal      | EM2305195      | 0.24                                 | 0.02                      | 0.41                 | 0.02                                 | <0.02                                  | 0.17                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.04                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               | 03 Aug 2023 | 0927_SW078_230803 | Normal      | EM2314151-AD   | 0.17                                 | 0.01                      | 0.30                 | <0.02                                | <0.02                                  | 0.13                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW083         | 27 Oct 2020 | 0927_SW83_201027  | Normal      | 753780         | 0.51                                 | 0.016                     | 0.602                | 0.009                                | 0.009                                  | 0.092                                 | 0.005                                  | <0.001                              | 0.014                         | 0.014                           | 0.031                          | 0.006                           | 0.003                         | 0.007                         | <0.001                            | <0.001                            |
| SW085         | 30 Oct 2020 | 0927_SW85_201030  | Normal      | 754818         | 0.022                                | 0.006                     | 0.036                | 0.003                                | 0.003                                  | 0.014                                 | <0.001                                 | <0.001                              | 0.009                         | 0.006                           | 0.010                          | 0.003                           | <0.001                        | 0.001                         | <0.001                            | <0.001                            |
|               | 21 Mar 2023 | 0927_SW085_230321 | Normal      | EM2305195      | 0.02                                 | <0.01                     | 0.06                 | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               | 03 Aug 2023 | 0927_SW085_230803 | Normal      | EM2314151-AD   | 0.04                                 | <0.01                     | 0.07                 | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW086         | 29 Oct 2020 | 0927_SW86_201029  | Normal      | 754818         | 0.038                                | 0.007                     | 0.06                 | 0.004                                | 0.004                                  | 0.022                                 | 0.001                                  | <0.001                              | 0.012                         | 0.006                           | 0.010                          | 0.003                           | 0.001                         | 0.002                         | <0.001                            | <0.001                            |
|               | 21 Mar 2023 | 0927_SW086_230321 | Normal      | EM2305195      | 0.04                                 | <0.01                     | 0.08                 | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               | 03 Aug 2023 | 0927_SW086_230803 | Normal      | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                 | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               |             | 0927_QC106_230803 | Field_D     | EM2314151-AD   | 0.02                                 | <0.01                     | 0.06                 | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               |             | 0927_QC206_230803 | Interlab_D  | 1016445        | 0.03                                 | <0.01                     | 0.06                 | <0.01                                | <0.01                                  | 0.03                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.01                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
| SW087         | 29 Oct 2020 | 0927_SW87_201029  | Normal      | 754818         | 0.16                                 | 0.008                     | 0.202                | 0.004                                | 0.004                                  | 0.042                                 | 0.003                                  | <0.001                              | 0.016                         | 0.006                           | 0.012                          | 0.003                           | 0.002                         | 0.005                         | <0.001                            | <0.001                            |
|               | 17 Mar 2023 | 0927_SW087_230317 | Normal      | EM2307274      | 0.05                                 | <0.01                     | 0.09                 | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               | 03 Aug 2023 | 0927_SW087_230803 | Normal      | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                 | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               |             | 0927_QC105_230803 | Field_D     | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                 | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               |             | 0927_QC205_230803 | Interlab_D  | 1016445        | 0.03                                 | <0.01                     | 0.06                 | <0.01                                | <0.01                                  | 0.03                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.01                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
| SW088         | 30 Oct 2020 | 0927_SW88_201030  | Normal      | 754818         | 0.033                                | 0.007                     | 0.058                | 0.006                                | 0.004                                  | 0.025                                 | 0.002                                  | <0.001                              | 0.017                         | 0.008                           | 0.014                          | 0.003                           | <0.001                        | 0.001                         | <0.001                            | <0.001                            |
|               | 21 Mar 2023 | 0927_SW088_230321 | Normal      | EM2305195      | 0.04                                 | <0.01                     | 0.08                 | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               |             | 0927_QC106_230321 | Field_D     | EM2305194      | 0.03                                 | <0.01                     | 0.07                 | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               |             | 0927_QC206_230321 | Interlab_D  | 975318         | 0.08                                 | 0.02                      | 0.16                 | 0.01                                 | 0.01                                   | 0.08                                  | <0.01                                  | <0.01                               | <0.05                         | 0.03                            | 0.03                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|               | 03 Aug 2023 | 0927_SW088_230803 | Normal      | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                 | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               |             | 0927_QC104_230803 | Field_D     | EM2314151-AD   | 0.03                                 | <0.01                     | 0.06                 | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|               |             | 0927_QC204_230803 | Interlab_D  | 1016445        | 0.03                                 | <0.01                     | 0.06                 | <0.01                                | <0.01                                  | 0.03                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.01                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |

|   |                   |                   |              |                | Perfluorocarbons                   |                                      |                                    |   |  |  |   |   |  |   |                                       |                                       |   |             |   |
|---|-------------------|-------------------|--------------|----------------|------------------------------------|--------------------------------------|------------------------------------|---|--|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|
|   |                   |                   |              |                | Perfluorotridecanoic acid (PFTrDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |
|   |                   |                   |              |                | µg/L                               | µg/L                                 | µg/L                               | µg/L  | µg/L   | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  |
| LOR   |                   |                   |              |                | 0.0005                             | 0.0005                               | 0.0005                             | 0.001   | 0.001  | 0.001  | 0.001   | 0.0005  | 0.0005   | 0.001                                     | 0.001                                 | 0.001                                 | 0.001                                       | 0.0003      | 0.001                                       |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                   |                   |              |                |                                    |                                      |                                    |   |  |  |   |   |  |   |                                       |                                       |   |             |   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                   |                   |              |                |                                    |                                      |                                    |   |  |  |   |   |  |   |                                       |                                       |   |             |   |
| Location Code                                   | Date              | Field ID          | Sample Type  | Lab Report No. |                                    |                                      |                                    |   |  |  |   |   |  |   |                                       |                                       |   |             |   |
| SW005   | 20 Aug 2018       | 0927_SW05_180820  | Normal       | 613490         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | 0.05  |
|   | 03 Jun 2019       | 0927_SW05_190603  | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | <0.01                                       |
|   | 02 Aug 2023       | 0927_SW005_230802 | Normal       | EM2314152-AC   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.12        |   |
| SW006   | 20 Aug 2018       | 0927_SW06_180820  | Normal       | 613490         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | 0.01  |
|   | 20 Mar 2023       | 0927_SW006_230320 | Normal       | EM2305194      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.01       |   |
|   |                   | 0927_QC104_230320 | Field_D      | EM2305194      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.02        |   |
|   | 0927_QC204_230320 | Interlab_D        | 975318       | <0.01          | <0.01                              | <0.05                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.1  | 0.01        |   |
| 01 Aug 2023                                     | 0927_SW006_230801 | Normal            | EM2314152-AC | <0.02          | <0.05                              | <0.02                                | <0.05                              | <0.05   | <0.05  | <0.02  | <0.02   | <0.02   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | <0.01                                       |             |   |
| SW008   | 20 Aug 2018       | 0927_SW08_180820  | Normal       | 613490         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | 0.04  |
| SW012   | 21 Aug 2018       | 0927_SW12_180821  | Normal       | 613490         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.36        | 0.28  |
|   | 03 Jun 2019       | 0927_SW12_190603  | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.19        | 0.17  |
|   | 09 Jul 2020       | 0927_SW12_200709  | Normal       | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.309       | 0.211                                       |
|   | 05 Aug 2020       | 0927_SW12_200805  | Normal       | 736375         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.533       | 0.371                                       |
|   | 04 Nov 2020       | 0927_SW12_201104  | Normal       | 755594         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.332       | 0.221                                       |
|   | 21 Mar 2023       | 0927_SW012_230321 | Normal       | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.31        |   |
|   | 02 Aug 2023       | 0927_SW012_230802 | Normal       | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.15        |   |
| SW013   | 21 Aug 2018       | 0927_SW13_180821  | Normal       | 613490         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.15        | 0.13  |
|   | 17 Mar 2023       | 0927_SW013_230317 | Normal       | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.29        |   |
|   | 02 Aug 2023       | 0927_SW013_230802 | Normal       | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.21        |   |
| SW015   | 21 Aug 2018       | 0927_SW15_180821  | Normal       | 613490         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | 0.01  |
|   | 03 Jun 2019       | 0927_SW15_190603  | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | <0.01                                       |
|   | 09 Jul 2020       | 0927_SW15_200709  | Normal       | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.066       | 0.036                                       |
|   |                   | 0927_QC102_200709 | Field_D      | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.065       | 0.035                                       |
|   | 0927_QC202_200709 | Interlab_D        | EM2012086    | <0.0008        | <0.0020                            | <0.0008                              | <0.002                             | <0.002  | <0.002   | <0.002                                       | <0.0008   | <0.0008   | <0.001   | <0.001                                    | <0.001                                | <0.001                                | 0.0811                                      |             |   |
|   | 20 Mar 2023       | 0927_SW015_230320 | Normal       | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.02        |   |
| 03 Aug 2023                                     | 0927_SW015_230803 | Normal            | EM2314151-AD | <0.02          | <0.05                              | <0.02                                | <0.05                              | <0.05   | <0.05  | <0.02  | <0.02   | <0.02   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | 0.06  |             |   |
| SW020   | 17 Jan 2019       | 0927_SW20_190117  | Normal       | 637379         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.84        | 0.57  |
|   | 03 Jun 2019       | SW20_190603       | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.26        | 0.21  |
|   |                   | 0927_SW20_200709  | Normal       | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.423       | 0.288                                       |
|   |                   | 0927_QC103_200709 | Field_D      | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.44        | 0.307                                       |
|   | 0927_QC203_200709 | Interlab_D        | EM2012086    | <0.0016        | <0.0040                            | <0.0016                              | <0.004                             | <0.004  | <0.004   | <0.004                                       | <0.0016   | <0.0016   | <0.002   | 0.002                                     | <0.002                                | <0.002                                | 0.590                                       |             |   |
|   | 05 Aug 2020       | 0927_SW20_200805  | Normal       | 736375         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | 0.014                                 | 0.002                                 | <0.001                                      | 0.305       | 0.198                                       |
|   | 04 Nov 2020       | 0927_SW20_201104  | Normal       | 755594         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.409       | 0.272                                       |
|   |                   | 0927_QC101_201104 | Field_D      | 755594         | 0.003                              | <0.001                               | <0.005                             | <0.005  | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | 0.005                                       | 0.433       | 0.262                                       |
|   |                   | 0927_QC201_201104 | Interlab_D   | EB2030068      | <0.0005                            | <0.0005                              | <0.0005                            | <0.001  | <0.001   | <0.001                                       | <0.001  | <0.0005   | <0.0005  | <0.001                                    | <0.001                                | <0.001                                | <0.001                                      | 0.386       |   |
|   | 21 Mar 2023       | 0927_SW020_230317 | Normal       | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.30        |   |
|   |                   | 0927_QC105_230321 | Field_D      | EM2305194      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.02   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.35        |   |
| 0927_QC205_230321                               |                   | Interlab_D        | 975318       | <0.01          | <0.01                              | <0.05                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | 0.69  | 0.49        |   |
| 02 Aug 2023                                     | 0927_SW020_230802 | Normal            | EM2314151-AD | <0.02          | <0.05                              | <0.02                                | <0.05                              | <0.05   | <0.05  | <0.02  | <0.02   | <0.02   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | 0.19  |             |   |



|   | Perfluorocarbons                    |                                       |                                    |  |  |  |   |   |  |   |                                       |                                       |   |        | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |       |        |       |  |
|---|-------------------------------------|---------------------------------------|------------------------------------|--|--|--|---|---|--|---|---------------------------------------|---------------------------------------|---|--------|-------------|---|-------|--------|-------|--|
|   | Perfluorotridecanoic acid (PFTTrDA) | Perfluorotetradecanoic acid (PFTTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSAA) | 2-(N-methylperfluoro-1-octane sulfonamido)ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) |        |             |   |       |        |       |  |
|   | µg/L                                | µg/L                                  | µg/L                               | µg/L   | µg/L   | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L   | µg/L        | µg/L  | µg/L  |        |       |  |
| LOR   | 0.0005                              | 0.0005                                | 0.0005                             | 0.001  | 0.001  | 0.001  | 0.001   | 0.0005  | 0.0005   | 0.001                                     | 0.001                                 | 0.001                                 | 0.001                                       | 0.0005 | 0.001       | 0.001                                       | 0.001 | 0.0003 | 0.001 |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                     |                                       |                                    |  |  |  |   |   |  |   |                                       |                                       |   |        |             |   |       |        |       |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                     |                                       |                                    |  |  |  |   |   |  |   |                                       |                                       |   |        |             |   |       |        |       |  |

| Location Code  | Date        | Field ID             | Sample Type | Lab Report No. | Perfluorotridecanoic acid (PFTTrDA) | Perfluorotetradecanoic acid (PFTTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSAA) | 2-(N-methylperfluoro-1-octane sulfonamido)ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |
|----------------|-------------|----------------------|-------------|----------------|-------------------------------------|---------------------------------------|------------------------------------|--|--|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|------|
| SW024          | 17 Jan 2019 | 0927_SW24_190117     | Normal      | 637379         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.85        | 0.65  |      |
|                | 21 Mar 2023 | 0927_SW024_230317    | Normal      | EM2307274      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.26  |      |
|                | 03 Aug 2023 | 0927_SW024_230803    | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.15  |      |
| SW027          | 03 Jun 2019 | SW27_190603          | Normal      | 662504         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.4         | 0.33  |      |
|                | 20 Mar 2023 | 0927_SW027_230320    | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.60        |   |      |
|                | 02 Aug 2023 | 0927_SW027_230802    | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.20        |   |      |
| SW030          | 17 Jan 2019 | 0927_SW30_190117     | Normal      | 637379         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.19        | 0.1   |      |
|                | 20 Mar 2023 | 0927_SW030_230320    | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.14        |   |      |
|                | 02 Aug 2023 | 0927_SW030_230802    | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.01        |   |      |
| SW034          | 03 Jun 2019 | 0927_SW34_190603     | Normal      | 662504         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.49        | 1.32  |      |
|                | 20 Mar 2023 | 0927_SW034_230320    | Normal      | EM2305194      | <0.02                               | <0.05                                 | 0.09                               | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 74.5        |   |      |
|                | 02 Aug 2023 | 0927_SW034_230802    | Normal      | EM2314152-AC   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 13.5        |   |      |
| SW035          | 06 Feb 2019 | 0927_SW35_190206     | Normal      | 639585         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 3.22        | 2.41  |      |
|                | 27 Oct 2020 | 0927_SW35_201027     | Normal      | 753780         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 2.281       | 2.134                                       |      |
| SW036          | 06 Feb 2019 | 0927_SW36_190206     | Normal      | 639585         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.21        | 0.97  |      |
|                |             | 0927_QC125_190206_SV | Field_D     | 639585         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.12        | 0.89  |      |
|                |             | 0927_QC225_190206_SV | Interlab_D  | EM1901728      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.28        |   |      |
|                | 27 Oct 2020 | 0927_SW36_201027     | Normal      | 753780         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.28        | 0.216                                       |      |
|                |             | 0927_QC102_201027    | Field_D     | 753780         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.383       | 0.314                                       |      |
|                | 27 Oct 2020 | 0927_QC202_201027    | Interlab_D  | EB2028871      | <0.0008                             | <0.0020                               | <0.0008                            | <0.002   | <0.002   | <0.002                                       | <0.002  | <0.0008   | <0.0008  | <0.001                                    | <0.001                                | <0.001                                | <0.001                                      | 0.373       |   |      |
| SW037          | 06 Feb 2019 | 0927_SW37_190206     | Normal      | 639585         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.11        | 0.07  |      |
| SW038          | 06 Feb 2019 | 0927_SW38_190206     | Normal      | 639585         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.29        | 1.02  |      |
| SW039          | 06 Feb 2019 | 0927_SW39_190206     | Normal      | 639585         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.69        | 1.34  |      |
|                | 27 Oct 2020 | 0927_SW39_201027     | Normal      | 753780         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.406       | 0.321                                       |      |
| SW041          | 03 Jun 2019 | 0927_SW41_190603     | Normal      | 662504         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.18        | 0.18  |      |
|                | 09 Jul 2020 | 0927_SW41_200709     | Normal      | 731055         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.043       | 0.02  |      |
|                | 05 Aug 2020 | 0927_SW41_200805     | Normal      | 736375         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.044       | 0.019                                       |      |
|                | 17 Mar 2023 | 0927_SW041_230317    | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.28        |   |      |
|                | 02 Aug 2023 | 0927_SW041_230802    | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.27        |   |      |
| SW042          | 03 Jun 2019 | 0927_SW42_190603     | Normal      | 662504         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.26        | 0.23  |      |
|                | 09 Jul 2020 | 0927_SW42_200709     | Normal      | 731055         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.494       | 0.411                                       |      |
|                | 05 Aug 2020 | 0927_SW42_200805     | Normal      | 736375         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.304       | 0.234                                       |      |
|                | 17 Oct 2023 | SW042_20231017       | Normal      | EM2318509      | <0.02                               | <0.02                                 | <0.05                              | <0.02  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.02                                     | <0.02                                 | <0.05                                 | <0.05                                       | <0.05       | <0.05                                       | 0.28 |
| QC100_20231017 |             | Field_D              | EM2318509   | <0.02          | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.02  | <0.02                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.27  |      |
| QC200_20231017 |             | Interlab_D           | 1036324     | <0.01          | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 0.26  |      |
| SW043          | 03 Jun 2019 | 0927_SW43_190603     | Normal      | 662504         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.15        | 0.15  |      |
|                |             | 0927_QC127_190603    | Field_D     | 662504         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.15        | 0.15  |      |
|                |             | 0927_QC227_190603    | Interlab_D  | EB1916408      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.15        |   |      |
|                | 02 Aug 2023 | 0927_SW043_230802    | Normal      | EM2314152-AC   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.14        |   |      |

|   | Perfluorocarbons                    |                                       |                                    |  |  |  |   |   |  |   |                                       |                                       |   |       | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |        |       |
|---|-------------------------------------|---------------------------------------|------------------------------------|--|--|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------|-------------|---|--------|-------|
|   | Perfluorotridecanoic acid (PFTTrDA) | Perfluorotetradecanoic acid (PFTTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSAA) | 2-(N-methylperfluoro-1-octane sulfonamido)ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) |       |             |   |        |       |
|   | µg/L                                | µg/L                                  | µg/L                               | µg/L   | µg/L   | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L  | µg/L        | µg/L  | µg/L   |       |
| LOR   | 0.0005                              | 0.0005                                | 0.0005                             | 0.001  | 0.001  | 0.001  | 0.001   | 0.0005  | 0.0005   | 0.001                                     | 0.001                                 | 0.0005                                | 0.001                                       | 0.001 | 0.001       | 0.001                                       | 0.0003 | 0.001 |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                     |                                       |                                    |  |  |  |   |   |  |   |                                       |                                       |   |       |             |   |        |       |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                     |                                       |                                    |  |  |  |   |   |  |   |                                       |                                       |   |       |             |   |        |       |

| Location Code     | Date        | Field ID          | Sample Type | Lab Report No. | Perfluorotridecanoic acid (PFTTrDA) | Perfluorotetradecanoic acid (PFTTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSAA) | 2-(N-methylperfluoro-1-octane sulfonamido)ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |
|-------------------|-------------|-------------------|-------------|----------------|-------------------------------------|---------------------------------------|------------------------------------|--|--|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|------|
| SW045             | 08 Jul 2020 | 0927_SW45_200708  | Normal      | 731055         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.042       | 0.016                                       |      |
|                   | 05 Aug 2020 | 0927_SW45_200805  | Normal      | 736375         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.05        | 0.019                                       |      |
|                   | 20 Mar 2023 | 0927_SW045_230320 | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.02  |      |
| SW049             | 02 Aug 2023 | 0927_SW045_230802 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.02  |      |
|                   | 09 Jul 2020 | 0927_SW49_200709  | Normal      | 731055         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.457       | 0.328                                       |      |
|                   | 05 Aug 2020 | 0927_SW49_200805  | Normal      | 736375         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.556       | 0.402                                       |      |
|                   | 04 Nov 2020 | 0927_SW49_201104  | Normal      | 755594         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.346       | 0.247                                       |      |
|                   | 17 Mar 2023 | 0927_SW049_230317 | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.31  |      |
| SW052             | 03 Aug 2023 | 0927_SW049_230803 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.21  |      |
|                   | 08 Jul 2020 | 0927_SW52_200708  | Normal      | 731055         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | 0.015   | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.076       | 0.033                                       |      |
|                   | 17 Mar 2023 | 0927_SW052_230317 | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.04  |      |
| SW073             | 03 Aug 2023 | 0927_SW052_230803 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
|                   | 02 Nov 2020 | 0927_SW73_201102  | Normal      | 755594         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.308       | 0.199                                       |      |
|                   | 17 Mar 2023 | 0927_SW073_230317 | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.71  |      |
| SW078             | 02 Aug 2023 | 0927_SW073_230802 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.17  |      |
|                   | 04 Nov 2020 | 0927_SW78_201104  | Normal      | 755594         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.39        | 0.29  |      |
|                   | 17 Mar 2023 | 0927_SW078_230317 | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.49  |      |
| SW083             | 03 Aug 2023 | 0927_SW078_230803 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.33  |      |
|                   | 27 Oct 2020 | 0927_SW83_201027  | Normal      | 753780         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.718       | 0.618                                       |      |
|                   | 30 Oct 2020 | 0927_SW85_201030  | Normal      | 754818         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.078       | 0.042                                       |      |
| SW085             | 21 Mar 2023 | 0927_SW085_230321 | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.06  |      |
|                   | 03 Aug 2023 | 0927_SW085_230803 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.07  |      |
|                   | 29 Oct 2020 | 0927_SW86_201029  | Normal      | 754818         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.111       | 0.067                                       |      |
| SW086             | 21 Mar 2023 | 0927_SW086_230321 | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.08  |      |
|                   | 03 Aug 2023 | 0927_SW086_230803 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
|                   |             | 0927_QC106_230803 | Field_D     | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.06  |      |
|                   |             | 0927_QC206_230803 | Interlab_D  | 1016445        | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | <0.1  | 0.06 |
| SW087             | 29 Oct 2020 | 0927_SW87_201029  | Normal      | 754818         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.267       | 0.21  |      |
|                   | 17 Mar 2023 | 0927_SW087_230317 | Normal      | EM2307274      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.09  |      |
|                   | 03 Aug 2023 | 0927_SW087_230803 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
|                   |             | 0927_QC105_230803 | Field_D     | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
| 0927_QC205_230803 |             | Interlab_D        | 1016445     | <0.01          | <0.01                               | <0.05                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | 0.06  |      |
| SW088             | 30 Oct 2020 | 0927_SW88_201030  | Normal      | 754818         | <0.001                              | <0.001                                | <0.005                             | <0.005   | <0.005   | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.12        | 0.065                                       |      |
|                   | 21 Mar 2023 | 0927_SW088_230321 | Normal      | EM2305195      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.08  |      |
|                   |             | 0927_QC106_230321 | Field_D     | EM2305194      | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.07  |      |
|                   |             | 0927_QC206_230321 | Interlab_D  | 975318         | <0.01                               | <0.01                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 0.26  | 0.18 |
|                   | 03 Aug 2023 | 0927_SW088_230803 | Normal      | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
|                   |             | 0927_QC104_230803 | Field_D     | EM2314151-AD   | <0.02                               | <0.05                                 | <0.02                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.06  |      |
| 0927_QC204_230803 | Interlab_D  | 1016445           | <0.01       | <0.01          | <0.05                               | <0.05                                 | <0.05                              | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.1  | 0.06        |   |      |

APPENDIX

C

E1 FACTUAL REPORT



now



# PFAS OMP Factual Report

Biannual Sampling Event March 2023

RAAF Williams (Laverton)

DEF19008



Prepared for  
Department of Defence

10 July 2023



now



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## Chemical Names

|       |  |
|-------|--|
| DOC   | Dissolved Organic Carbon                   |
| DO    | Dissolved Oxygen                           |
| PFAS  | Per- and Poly-fluoroalkyl Substances       |
| PFHxS | Perfluorohexanesulfonate                   |
| PFOA  | Perfluorooctanoic Acid                     |
| PFOS  | Perfluorooctane Sulfonate                  |
| TDS   | Total Dissolved Solids (salinity of water) |
| TSS   | Total Suspended Solids                     |

## Technical Terms

|        |   |
|--------|---|
| AFFF   | Aqueous Film-Forming Foam                                       |
| AHD    | Australian Height Datum   |
| ANZECC | Australian and New Zealand Environment and Conservation Council |
| ANZG   | Australia and New Zealand Guidelines                            |
| AS     | Australian Standard   |
| COC    | Chain of Custody  |
| DCMM   | Defence Contamination Management Manual                         |
| DSI    | Detailed Site Investigation                                     |
| DQI    | Data Quality Indicator  |
| DQO    | Data Quality Objective  |
| EC     | Electrical Conductivity   |
| EPA    | Environment Protection Authority                                |
| HEPA   | Heads of Environmental Protection Authority                     |
| LOR    | Limit of Reporting  |
| N/A    | Not Applicable  |
| NATA   | National Association of Testing Authorities                     |
| NEPC   | National Environment Protection Council                         |
| NEPM   | National Environmental Protection Measure                       |
| NHMRC  | National Health and Medical Research Council                    |
| MA     | Management Area   |
| QA     | Quality Assurance   |
| QC     | Quality Control   |
| RPD    | Relative Percentage Difference                                  |
| SAQP   | Sampling and Analysis Quality Plan                              |
| SWL    | Standing Water Level  |

## Units

|      |                                |
|------|--------------------------------|
| ha   | Hectares                       |
| mAHD | Metres Australian Height Datum |
| mBGL | Metres Below Ground Level      |



|       |  |
|-------|--|
| mbTOC | Metres below Top of Casing                                     |
| mg/kg | Milligram per Kilogram (approximately equivalent to ppm)       |
| mg/L  | Milligram per Litre  |
| ppm   | Parts per Million  |
| µg/L  | Micrograms per Litre   |
| µS/cm | Micro Siemens per Centimetre (Electrical Conductivity - Water) |

## Site Specific

|      |  |
|------|--|
| OMP  | Ongoing Monitoring Plan                |
| FTG  | Fire Training Ground                   |
| EDMS | Environmental Data Management Software |

# 1 Introduction

## 1.1 Background

Cardno now Stantec (Cardno) was engaged by the Australian Department of Defence (“Defence”) to carry out the Per- and Poly-Fluoroalkyl Substances (PFAS) Ongoing Monitoring Plan (OMP) at Royal Australian Air Force (RAAF) Williams (Laverton) (“the Site”). The location and layout of the Site are shown on Figures 1 and 2, presented in Appendix A.

The OMP was carried out in accordance with the scope and limitations presented in Cardno’s Sampling and Analysis Quality Plan (SAQP):

- > Cardno, 11 May 2023, Reference: DEF19008, ‘*PFAS Ongoing Monitoring Plan Sampling and Analysis Quality Plan (SAQP), RAAF Williams (Laverton), Rev 2*’.

For the purposes of this report:

- > The “On-Site Management and Monitoring Area” is defined as the current extents of RAAF Williams (Laverton) (‘the Site’).
- > The “Off-Site Monitoring Area” includes private properties and public land to the west (former Base extents, now referred to as Williams Landing), south-west and south of the Site, and waterbodies and adjacent land situated hydraulically downgradient of the Site, including Skeleton Creek and Sanctuary Lakes.
- > The “Management Area” encompasses the “On-Site Management and Monitoring Area” and the “Off-Site Monitoring Area”.

The Site is located on Commonwealth Land and is regulated under Commonwealth environmental legislation. The OMP outlines the rationale and scope for the monitoring of the concentrations and extent of PFAS in groundwater and surface water at and around the Site.

## 1.2 Purpose & Objectives

The objective of the OMP is to assess the changes in the nature and extent of PFAS within the environment, specifically where there is an identified potentially elevated risk to a receptor, or a potential future risk to a receptor, associated with Defence’s historical use of legacy Aqueous Film Forming Foam (AFFF).

The purpose of this PFAS OMP factual report is to provide an up-to-date status of the condition of the Site as it is currently understood in relation to the most recent sampling event.

The objectives of the report are:

- > To provide a succinct summary of the first sampling event of the OMP (E1) conducted in March 2023 and provision of analytical results with supporting tables and figures.
- > To provide confirmation of the current understanding of risk.
- > To provide supporting data for the assessment of management actions, where relevant.

## 1.3 Relevant Guidelines

This assessment has been undertaken in general accordance with applicable industry standards for a site investigation for the purpose, objectives and scope identified in this report. These standards are set out in:

- > Australian and New Zealand Guidelines, 2018, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.
- > Australian Standard AS 4482-2005, 2005, *Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 – Non-volatile and semi-volatile compounds* (withdrawn as pending revision, referred to for ‘state of knowledge’).
- > Department of Defence, Department of Energy, 2018, *Quality System Manual Schedule B15*.
- > Heads of Environmental Protection Authority’s Australia and New Zealand (HEPA), 2020, *PFAS National Environmental Management Plan (NEMP), Version 2.0*, January 2020.

- > National Environment Protection Council (NEPC), 1999, *National Environmental Protection (Assessment of Site Contamination) Measure (as amended 2013)* (ASC NEPM).
- > National Health and Medical Research Council (NHMRC), 2019, *Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water*, August 2019.
- > Standards Australia, 1998, AS/NZ 5667:1998 *Water quality – sampling*.
- > U.S. Environmental Protection Agency (USEPA), 2006, *Guidance for the Data Quality Objectives Process (EPA QA/G-4)*.
- > USEPA, 2002, *Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8)*.

## 2 Scope of Work

Cardno carried out the following tasks in order to satisfy the purpose and objectives of this assessment.

### 2.1 Groundwater Monitoring

Sampling of selected groundwater bores was performed in general accordance with the SAQP, applying methods set out in Section 3.1 of this report. The groundwater bores monitored as part of the OMP are presented in Table 2-1, and are shown on Figures 3 and 4, Appendix A.

Table 2-1 Groundwater Monitoring Locations

| Monitoring Area  | Total no. of Locations | Location ID  |
|--|------------------------|--|
| Groundwater Wells to be Gauged and Sampled <b>(On-Site)</b>  | 26                     | MW102, MW103, MW105, MW107, MW109, MW110, MW115, MW117, MW118, MW120, MW138, MW139, MW140, MW144, MW146, MW152, MW155, MW163, MW182, MW185, MW192, MW200, MW207, MW208, MW211, MW217   |
| Groundwater Wells to be Gauged and Sampled <b>(Off-Site)</b> | 9                      | MW121, MW123, MW124, MW126, MW130, MW131, MW137, MW228, MW229,   |
| Groundwater Wells to be Gauged Only <b>(On-Site)</b>         | 40                     | MW100, MW101, MW104, MW106, MW108, MW111, MW112, MW113, MW114, MW116, MW119, MW145, MW154, MW157, MW159, MW164, MW165, MW168, MW171, MW173, MW175, MW176, MW181, MW186, MW188, MW190, MW194, MW196, MW197, MW201, MW203, MW206, MW209, MW212, MW213, MW214, MW215, MW218, MW222, MW225 |
| Groundwater Wells to be Gauged Only <b>(Off-Site)</b>        | 10                     | MW122, MW125, MW127, MW128, MW132, MW133, MW134, MW135, MW136, MW230   |

### 2.2 Surface Water Monitoring

The surface water sampling locations monitored as part of the OMP are presented in Table 2-2, and are shown on Figure 5, Appendix A.

Table 2-2 Surface Water Monitoring Locations

| Monitoring Area   | Total No. of Monitoring Locations | Location ID   |
|---|-----------------------------------|---|
| Surface Water Locations to be sampled <b>(On-Site)</b>  | 5                                 | SW005, SW006, SW008, SW034, SW043                                     |
| Surface Water Locations to be sampled <b>(Off-Site)</b> | 18                                | SW012, SW013, SW015, SW020, SW024, SW027, SW030, SW041, SW042, SW045, |

| Monitoring Area | Total No. of Monitoring Locations | Location ID  |
|-----------------|-----------------------------------|--|
|                 |                                   | SW049, SW052, SW073, SW078, SW085, SW086, SW087, SW088 |

## 2.3 Data Management

All the data included in the report have been collected, uploaded to the ESdat database and reviewed according to the data management requirements of the Defence Contamination Management Manual (DCMM) Annex L.

## 2.4 Deviations from the OMP SAQP

Deviations from the SAQP are summarised in Table 2-3 below. A summary of the event is as follows:

- > Sampling was undertaken at 35 groundwater monitoring wells. An additional 44 wells were gauged only.
- > 19 surface water locations were sampled.
- > Six groundwater monitoring wells could not be gauged, the reasons of which are discussed below.
- > Four surface water locations could not be sampled, the reasons of which are discussed below.

Table 2-3 Deviations from the SAQP

| Location             | Deviation   | Comment/Justification   | Impact on Existing Dataset   |
|----------------------|-------------|---|--|
| <b>Groundwater</b>   |             |   |  |
| MW101                | Not Gauged  | Unable to open rusted gatic cover   | Low Impact - well is gauged only, so only data impact is missing gauging data in this area   |
| MW104                | Not Gauged  | Unable to open rusted gatic cover   | Low Impact - well is gauged only, so only data impact is missing gauging data in this area   |
| MW119                | Not Gauged  | Unable to open, damaged bolts on the gatic lid.   | Low Impact - well is gauged only, so only data impact is missing gauging data in this area   |
| MW122                | Not Gauged  | Well not located and may be destroyed as it appears to have been covered by concrete.       | Low Impact - well is gauged only, so only data impact is missing gauging data in this area   |
| MW127                | Not Gauged  | Well not located and may be destroyed as it appears to have been buried.                    | Low Impact - well is gauged only, so only data impact is missing gauging data in this area   |
| MW230                | Not Gauged  | Well not located and may be destroyed as it appears to have been buried, new developed park | Low Impact - well is gauged only, so only data impact is missing gauging data in this area   |
| <b>Surface Water</b> |             |   |  |
| SW005                | Not Sampled | Location dry  | Medium Impact – Potential data gap for surface water inflow to the Site. Location was previously sampled during Detailed Site Investigation (DSI) in 2018 and reported results below adopted criteria. |

| Location | Deviation   | Comment/Justification | Impact on Existing Dataset   |
|----------|-------------|-----------------------|--|
| SW008    | Not Sampled | Location dry          | Medium Impact – Potential data gap for surface water inflow to the Site. Location was previously sampled during DSI in 2018 and reported results below adopted criteria.   |
| SW042    | Not Sampled | Location dry          | Medium Impact – Potential data gap for surface water outflow from the Site into Skeleton Creek. Location was previously sampled during DSI in 2018 and reported results above LOR. SW073 located downstream from this location was sampled, so data from that drainage is available. |
| SW043    | Not Sampled | Location dry          | Medium Impact – Potential data gap for surface water outflow from Western Finger Area into Skeleton Creek. Location was previously sampled during DSI in 2018 and reported results above LOR.  |

### 3 Methodology

#### 3.1 Groundwater Sampling Methodology

Groundwater monitoring was undertaken using the HydraSleeve® method as detailed in Table 3-1.

Table 3-1 Groundwater Sampling Method

| Activity                     | Details  |
|------------------------------|--|
| Date of Field Activity       | 14 to 22 March 2023  |
| Well Gauging                 | Standing Water Levels (SWL) were gauged using an interface probe. All wells were measured against a specified mark at the top of the well casing.  |
| Groundwater Field Parameters | <p>Groundwater water quality field parameters were recorded with a water quality meter after sample collection using extra sample water from within the deployed HydraSleeve® decanted into a clean jar. The following field parameters were recorded using a water quality meter:</p> <ul style="list-style-type: none"> <li>▪ pH</li> <li>▪ Electrical conductivity (EC).</li> <li>▪ Oxidation reduction potential (ORP).</li> <li>▪ Dissolved oxygen (DO).</li> <li>▪ Temperature.</li> </ul> <p>Field parameters measured by the water quality meter were recorded on field data records. All field instruments (e.g. water quality meter) were calibrated by the equipment supplier to optimise the accuracy of the measurements taken. Bump tests were also completed daily by field staff during the monitoring event. Calibration certificates are provided in Appendix D. Field observations such as colour, presence of suspended solids, turbidity, and the presence of odours, sheen, oily film, nuisance organisms, floating debris or frothing were also recorded on field sampling sheets, if relevant.</p> |
| Deployment of HydraSleeve®   | HydraSleeves® were deployed with attached weights in order for sample collection to begin at the lowest point of the well screen. During the E1 monitoring event, new HydraSleeves® were deployed after the gauging round, prior to sampling and were replaced after the sampling event in preparation of the next event planned for August 2023. HydraSleeves® were left in wells for a   |

| Activity  | Details  |
|---|--|
|   | minimum of 24 hours to allow restabilisation of the well following the slight disturbance caused by sampler deployment, before sampling.   |
| Retrieval of HydraSleeves® (Sample Collection)                  | <p>Samples were collected via continuous pull method at a rate allowing the water to pass through the check valve into the sample sleeve.</p> <p>Samples were discharged immediately (to minimise changes in chemistry) via a discharge tube.</p> <p>All HydraSleeves® were replaced with new HydraSleeves® after sampling in preparation for the next sampling event.</p> <p>Where insufficient water was available for HydraSleeve® sampling, 3 monitoring well volumes were removed by bailer, or the well was purged dry, prior to bailer sample collection.</p>   |
| Decontamination procedure                                       | <p>New HydraSleeves® were used at each groundwater monitoring well, thus removing the need for decontamination. Where HydraSleeves® could not be used, dedicated bailers were used instead which also did not require decontamination.</p> <p>All re-usable sampling equipment was thoroughly washed using PFAS &amp; phosphate-free detergent, then double rinsed with clean water before the sample collection.</p>  |
| Sample identification, preservation transport and holding times | <p>Each sample was labelled with the sample location, date, project identification number and sampler's initials.</p> <p>Samples were collected directly into appropriately preserved laboratory supplied bottles (Teflon-free) and packed in chilled containers for delivery to the laboratory under Chain of Custody (COC) documentation.</p> <p>Sample containers, preservation procedures, sample storage requirements and holding times were undertaken in accordance with those recommended by Standards Australia (AS/NZS 5667.1:1998 and AS 4482.1 as appropriate).</p>  |
| Laboratory Testing  | <p>All groundwater samples were analysed for the full PFAS analytical suite (see SAQP for full list of analytes).</p> <p>The primary laboratory was ALS Global Laboratories (Springvale), and the secondary laboratory (quality control) was Eurofins (Dandenong South). Both laboratories are NATA-accredited for the parameters tested. Copies of the NATA stamped laboratory reports and COC documentation are included in Appendix C.</p>  |
| Laboratory Testing – Quality Control                            | <p>Groundwater quality control samples were collected as set out in the SAQP and analysed for the full PFAS analytical suite.</p> <ul style="list-style-type: none"> <li>▪ Field duplicate (intra-laboratory) samples at one per 10 water samples (four samples).</li> <li>▪ Field triplicate (inter-laboratory) samples at one per 10 water samples (four samples).</li> <li>▪ Rinsate blank samples were collected off re-used sampling equipment (e.g. interface probe)] (eight samples total).</li> <li>▪ Trip blank samples of one per shipment included in the chilled sample containers upon transport to the laboratory (five samples total).</li> </ul> |

### 3.2 Surface Water Sampling Methodology

The surface water monitoring methods and activities are summarised in Table 3-2.

Table 3-2 Surface Water Sampling Method

| Item                    | Details   |
|-------------------------|---|
| Dates of Field Activity | 14 to 22 March 2023.  |
| Water Levels            | Water depths were measured where accessible and referenced against the survey reference marks.  |
| Flow measurement        | Qualitative flow was measured at surface water monitoring locations where accessible and where flow was occurring using the float method.   |
| Field parameters        | <p>Surface water quality parameter field measurements (i.e. pH, EC, ORP, DO and temperature) were recorded at the time of sampling using a pre-calibrated water quality meter.</p> <p>Field observations such as colour, presence of suspended solids, flow, turbidity, and the presence of odours, sheen, oily film, nuisance organisms, floating debris or frothing were also recorded on field sampling sheets, if relevant.</p> |

| Item  | Details  |
|---|--|
| Sampling Method   | <p>Where possible, the samples were collected directly into sample containers. Where depth permits, the sample bottles were positioned at least 10 cm below the surface water level and above the sediment bed and orientated with the opening facing downwards to avoid the collection of surface films.</p> <p>Where access to surface water was difficult, the samples were collected by attaching the sample bottles to a long-handled sampling device (telescopic pole) which was directly filled by lowering the sample bottle into the surface water body. The sample bottle was attached so that the telescopic pole was not in direct contact with the opening of the sample bottle.</p> <p>Samples were collected in accordance with Australian/New Zealand Standards (AS/NZS 5667.1:1998) 'Water quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples' and in accordance with Industrial Waste Resources Guidelines (IWRG), <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes</i>, Publication 701.</p> |
| Decontamination   | <p>All re-usable sampling equipment (e.g. telescopic pole) were thoroughly washed using phosphate-free detergent (Liquinox), and subsequently double rinsed with clean water before the sample collection.</p>   |
| Sample identification, preservation, transport and holding times. | <p>Each sample was labelled with the sample location, date, project identification number and sampler's initials. Sample labelling and naming was in accordance with Annex L of the DCMM.</p> <p>Samples were contained in appropriately preserved laboratory supplied bottles (Teflon-free) and packed in chilled containers for delivery to the laboratory under COC documentation.</p> <p>Sample containers, preservation procedures, sample storage requirements and holding times were undertaken in accordance with those recommended by Standards Australia (AS/NZS 5667.1:1998 and AS 4482.1 as appropriate).</p>  |
| Laboratory Testing  | <p>All surface water samples were analysed for the full PFAS analytical suite (see SAQP for full list of analytes).</p> <p>The primary laboratory was ALS Global Laboratories (Springvale), and the secondary laboratory (quality control) was Eurofins (Dandenong South). Both laboratories are NATA-accredited for the parameters tested. Copies of the NATA stamped laboratory reports and COC documentation are included in Appendix C.</p>  |
| Laboratory Testing – Quality Control                              | <p>Surface water quality control samples were collected as set out in the SAQP and analysed for the full PFAS analytical suite.</p> <ul style="list-style-type: none"> <li>▪ Field duplicate (intra-laboratory) samples at one per 10 water samples (three samples).</li> <li>▪ Field triplicate (inter-laboratory) samples at one per 10 water samples (three samples).</li> <li>▪ Rinsate blank samples were collected off re-used sampling equipment (e.g. telescopic water sampling device)] (eight samples total).</li> <li>▪ Trip blank samples of one per shipment included in the chilled sample containers upon transport to the laboratory (five samples total).</li> </ul>  |

### 3.3 Quality Control / Quality Assurance

A critical aspect of site assessments is the demonstration of the quality of the data used as the basis for the assessment. This is achieved through a Data Validation process which includes a review of the following data quality indicators, as described in the SAQP:

- > QA documentation.
- > Bias.
- > Data Representativeness.
- > Data Precision & Accuracy.
- > Laboratory Performance.
- > Data Comparability.

> Data Set Completeness.

A detailed review of these aspects has been undertaken, the results of which are presented in Appendix E. A summary of the data validation from the QA/QC review is included in Section 4.5 below.

### 3.4 Assessment Criteria

#### 3.4.1 Groundwater

The adopted assessment criteria for groundwater are detailed in Table 3-3.

Table 3-3 Criteria for Groundwater

| Exposure Scenario  | Adopted Assessment Criteria |      |      |  | Guidance         | Original References                                 |
|--|-----------------------------|------|------|--|------------------|---|
|  | PFOS+PFHxS                  | PFOA | PFOS |  |                  |   |
|  | µg/L                        |      |      |  |                  |   |
| Human Health - Groundwater Recreational  | 2 <sup>1</sup>              | 10   | -    |  | PFAS NEMP (2020) | National Health and Medical Research Council (2019) |
| Interim marine water (95% species protection - slightly to moderately disturbed systems) | -                           | 220  | 0.13 |  | PFAS NEMP (2020) | National Health and Medical Research Council (2019) |

1. Combined PFOS and PFHxS.

#### 3.4.2 Surface Water

The adopted assessment criteria for surface water are detailed in Table 3-4.

Table 3-4 Criteria for Surface Water

| Exposure Scenario  | Adopted Assessment Criteria |      |      |  | Guidance         | Original References                                 |
|--|-----------------------------|------|------|--|------------------|---|
|  | PFOS+PFHxS                  | PFOA | PFOS |  |                  |   |
|  | µg/L                        |      |      |  |                  |   |
| Human Health – Surface water Recreational  | 2 <sup>1</sup>              | 10   | -    |  | PFAS NEMP (2020) | National Health and Medical Research Council (2019) |
| Interim marine water (95% species protection - slightly to moderately disturbed systems) | -                           | 220  | 0.13 |  | PFAS NEMP (2020) | National Health and Medical Research Council (2019) |

1. Combined PFOS and PFHxS.

## 4 Field Observations and Results

### 4.1 Conditions Impacting the Sampling Event

In the seven days prior to the sampling event, 7.4 mm of rain was recorded and during the sampling event (14 to 22 May 2023), at the nearest weather station (087031), located on-Site in the northwest portion of the



Site. The monthly rainfall (27.2 mm) recorded in month of March 2023 which was lower than the monthly average rainfall in March between 2021 and 2022 of 45.2 mm<sup>1</sup>.

No on-site activities with potential to impact sample collection or results were noted.

## 4.2 Groundwater

### 4.2.1 Summary of Field Observations

#### 4.2.1.1 Water Quality Parameter Field Measurements

Stabilised groundwater water quality parameter field measurements, water colour and turbidity observations recorded during the groundwater sampling program are presented in field sampling record sheets, included in Appendix D. Groundwater colour varied from clear to cloudy with generally low to medium turbidity. Water quality parameter field measurements were generally consistent with the previous monitoring event (DSI) (Aurecon, 2020).

#### 4.2.1.2 Groundwater Elevation and Migration

Groundwater elevation during this sampling event ranged from 3.442 mAHD (MW123) to 12.904 mAHD (MW135). Regional groundwater flow was interpreted to be in a south-easterly direction, towards the Skeleton Creek and eventually into Port Philip Bay, consistent with the groundwater flow direction noted in the DSI (Aurecon, 2020).

Groundwater elevation contours and flow directions are shown in Figure 3, Appendix A. Gauging records are presented in Appendix D.

### 4.2.2 Groundwater Laboratory Results

The results of laboratory analysis have been compared against adopted assessment criteria, and are presented in Table B1, Appendix B, and summarised in Table 4-1 below. Of the 35 samples that were analysed, PFOS was reported above adopted criteria in 32 samples, PFOA in one sample, and PFOS+PFHxS in 23 samples. The laboratory reports are provided in Appendix C.

Table 4-1 Summary of Groundwater Results Exceeding Adopted Criteria

| Analytes   | Locations Exceeding Criteria   | Lowest Criteria (µg/L) | Max Conc. (µg/L) <sup>4</sup> | No. Analytical Results >LOR | No. Results Above Criteria | Significant Concentration Changes <sup>3</sup> |
|------------|--|------------------------|-------------------------------|-----------------------------|----------------------------|--|
| PFOS       | MW102, MW103, MW105<br>MW107, MW109, MW110<br>MW117, MW118, MW120<br>MW121, MW123, MW124<br>MW130, MW131, MW137,<br>MW138, MW139, MW140,<br>MW144, MW146, MW152,<br>MW155, MW163, MW182,<br>MW185, MW192, MW200,<br>MW207, MW208, MW211,<br>MW228, MW229 | 0.13 <sup>2</sup>      | 552                           | 35                          | 32                         | MW131, MW137<br>(increase)                     |
| PFOA       | MW163  | 10 <sup>1</sup>        | 18.1                          | 33                          | 1                          | None   |
| PFOS+PFHxS | MW102, MW103, MW105<br>MW107, MW110, MW117<br>MW118, MW120, MW123<br>MW130, MW131, MW138,<br>MW139, MW152, MW155<br>MW163, MW182, MW185  | 2 <sup>1</sup>         | 821                           | 35                          | 23                         | None   |

<sup>1</sup> Climate statistics for Australian locations – summary statistics Laverton  
[http://www.bom.gov.au/climate/averages/tables/cw\\_087031.shtml](http://www.bom.gov.au/climate/averages/tables/cw_087031.shtml), last accessed 12 March 2023.

| Analytes  | Locations Exceeding Criteria        | Lowest Criteria (µg/L) | Max Conc. (µg/L) <sup>4</sup> | No. Analytical Results >LOR | No. Results Above Criteria | Significant Concentration Changes <sup>3</sup> |
|---|-------------------------------------|------------------------|-------------------------------|-----------------------------|----------------------------|--|
|   | MW192, MW200, MW207<br>MW208, MW228 |                        |                               |                             |                            |  |
| <b>Note:</b><br>1. Recreational Water (Health) assessment criteria.<br>2. Ecological assessment criteria.<br>3. Significant change defined as an order of magnitude increase or decrease from the previous monitoring round.<br>4. Historical and current concentrations presented in Appendix B. |                                     |                        |                               |                             |                            |  |

Laboratory results have also been compared to available historical data. The following locations have reported a significant change in concentration for this monitoring event:

- > MW131: PFOS concentrations have increased by one order of magnitude from the previous sampling event (DSI) conducted in 2019. The PFOS concentrations increased from 2.2 µg/L in 2019 to 43.4 µg/L in 2023.
- > MW137: PFOS concentrations have increased by one order of magnitude from the previous sampling event (DSI) conducted in 2019. The PFOS concentrations increased from 0.04 µg/L in 2019 to 0.68 µg/L in 2023.
- > All other concentrations reported during this event were generally consistent with previous sampling.

A summary of locations where a first-time detection, or a new exceedance of guideline values were reported is provided in Table 4-2 below. The laboratory reports are provided in Appendix C.

Table 4-2 Summary of Groundwater Results with First-time Detections or New Exceedances of Adopted Criteria

| Deviation Type  | Monitoring Well | PFOS+PFHxS concentration (µg/L) |                                  | PFOA concentration (µg/L) |                                  | PFOS concentration (µg/L) |                                  |
|---|-----------------|---------------------------------|----------------------------------|---------------------------|----------------------------------|---------------------------|----------------------------------|
|   |                 | March 2023                      | Previous Maximum (Aurecon, 2020) | March 2023                | Previous Maximum (Aurecon, 2020) | March 2023                | Previous Maximum (Aurecon, 2020) |
| First-time detections   | MW109           | 0.81                            | 0.3                              | 0.01                      | <0.01                            | <b>0.41</b>               | <b>0.17</b>                      |
|   | MW115           | 0.03                            | 0.01                             | <0.01                     | <0.01                            | <b>0.02</b>               | <0.01                            |
| New exceedance of lowest adopted criteria   | MW123           | <b>2.78</b>                     | 1.81                             | 0.05                      | 0.05                             | <b>1.6</b>                | <b>0.71</b>                      |
|   | MW137           | 0.98                            | 0.31                             | 0.04                      | 0.01                             | <b>0.68</b>               | 0.04                             |
|   | MW211           | 0.75 <sup>1</sup>               | 0.48                             | 0.02 <sup>1</sup>         | 0.01                             | <b>0.14<sup>1</sup></b>   | 0.05                             |
| <b>Note:</b><br><span style="color: blue;">■</span> Location with first-time detection of PFOS + PFHxS or PFOA or PFOS in latest monitoring round.<br><span style="color: yellow;">■</span> Location with a new exceedance of recreational water (health) guideline values in latest monitoring round.<br><b>Bold:</b> Exceedance of lowest adopted guideline values.<br>1. Result recorded on quality control (duplicate or split) sample. |                 |                                 |                                  |                           |                                  |                           |                                  |

Findings are summarised as follows:

- > One groundwater sampling location (MW123) reported a new exceedance of Recreational Water (Health) Criteria for PFOS+PFHxS.
- > Two groundwater sampling locations (MW137 and MW211) reported a new exceedance of Ecological Criteria for PFOS.
- > One groundwater sampling location (MW109) reported a first-time detection of PFOA.
- > One groundwater sampling location (MW115) reported a first-time detection of PFOS.

### 4.3 Surface Water

#### 4.3.1 Summary of Field Observations

##### 4.3.1.1 Water Quality Parameter Field Measurements

Stabilised surface water quality parameter field measurements, water colour and turbidity observations recorded during the surface water sampling program are presented in field sampling record sheets, included in Appendix D. Surface water colour varied from clear to brown/black, and was generally observed to have low to medium turbidity. Water quality parameter field measurements were generally consistent with the previous sampling event (DSI) (Aurecon, 2020).

##### 4.3.1.2 Surface Water Flow

Surface water flow was measured at 19 locations using the float method. The flow rate ranged from stagnant/low to medium flow, though low flow was observed at most locations. Flow measurements are summarised in Table D1, Appendix D.

#### 4.3.2 Surface Water Laboratory Results

The results of laboratory analysis have been compared against adopted assessment criteria, presented in Table B2, Appendix B, and summarised in Table 4-3 below. Of the 19 samples that were tested, PFOS was reported above adopted criteria in five samples and PFOS+PFHxS in one sample. The laboratory reports are provided in Appendix C.

Table 4-3 Summary of Surface Water Results Exceeding Adopted Criteria

| Analytes   | Locations Exceeding Criteria      | Lowest Criteria (µg/L) | Max Conc. (µg/L) <sup>4</sup> | No. Analytical Results >LOR | No. Results Above Criteria <sup>1,2</sup> | Significant Concentration Changes <sup>3</sup> |
|------------|-----------------------------------|------------------------|-------------------------------|-----------------------------|---|--|
| PFOS       | SW020, SW027, SW034, SW073, SW078 | 0.13 <sup>2</sup>      | 34.6                          | 17                          | 5   | SW034 (Increase)                               |
| PFOA       | None                              | 10 <sup>1</sup>        | 0.96                          | 11                          | None                                      | SW034 (Increase)                               |
| PFOS+PFHxS | SW034                             | 2 <sup>1</sup>         | 55.6                          | 19                          | 1   | SW034 (Increase)                               |

**Note:**

1. Recreational water (Health) assessment criteria.
2. Ecological assessment criteria.
3. Significant change defined as an order of magnitude increase or decrease from the previous monitoring round.
4. Historical and current concentrations presented in Appendix B.

Results have also been compared to available historical data. The following locations reported a significant change in concentration for this monitoring event:

- > SW034: PFOS, PFOA and PFOS+PFHxS concentrations have increased by one order of magnitude from the previous sampling event (DSI) conducted in 2019.

All other concentrations reported during this event were generally consistent with previous sampling.

A summary of locations where a first-time detection, or a new exceedance of guideline values were reported is provided in Table 4-4 below. The laboratory reports are provided in Appendix C.

Table 4-4 Summary of Surface Water Results with First-time Detections or New Exceedances of Adopted Criteria

| Deviation Type | Monitoring Well | PFOS+PFHxS concentration (µg/L) |                                  | PFOA concentration (µg/L) |                                  | PFOS concentration (µg/L) |                                  |
|----------------|-----------------|---------------------------------|----------------------------------|---------------------------|----------------------------------|---------------------------|----------------------------------|
|                |                 | March 2023                      | Previous Maximum (Aurecon, 2020) | March 2023                | Previous Maximum (Aurecon, 2020) | March 2023                | Previous Maximum (Aurecon, 2020) |
|                | SW034           | 55.6                            | 1.31                             | 0.96                      | 0.01                             | 34.6                      | 1.1                              |

|  |       |     |       |      |      |             |       |
|--|-------|-----|-------|------|------|-------------|-------|
| New exceedance of lowest adopted criteria  | SW073 | 1.3 | 0.189 | 0.02 | 0.01 | <b>0.43</b> | 0.079 |
| <b>Note:</b><br><span style="color: blue;">■</span> Location with first-time detection of PFOS + PFHxS or PFOA or PFOS in latest monitoring round.<br><span style="color: yellow;">■</span> Location with a new exceedance of lowest adopted guideline values in latest monitoring round.<br><b>Bold:</b> Exceedance of lowest adopted guideline values. |       |     |       |      |      |             |       |

Findings are summarised as follows:

- > SW034 reported a new exceedance of the Recreational Water (Health) Criteria for PFOS+PFHxS.
- > SW073 reported a new exceedance of Ecological Criteria for PFOS.
- > No surface water sampling locations reported a first-time detection of PFOS, PFOA or PFOS+PFHxS.

#### 4.4 Changes to the Monitoring Network Condition

The following changes to the monitoring network condition were noted during this event:

- > Monitoring wells MW122, MW127 and MW230 could not be located and may potentially be destroyed as the area where the wells were located are covered by new concrete (MW122) or new landscaping / vegetation (MW127 and MW230).
- > The gatic cover and bolts of monitoring wells MW101, MW104 and MW119 requires maintenance, as it was observed to be rusted and could not be opened.

#### 4.5 Data Validation

The data validation process has concluded that there are no significant systematic errors in the data collection process. Therefore, the data set used as the basis for the surface water and groundwater assessment is considered valid and complete. A detailed Data Quality Review is included in Appendix E.

## 5 Summary and Conclusions

Cardno conducted the March 2023 E1 biannual groundwater and surface water monitoring event at RAAF Williams (Laverton) as part of the PFAS OMP. Groundwater and surface water sampling and testing were undertaken at 35 groundwater monitoring locations and 19 surface water locations.

Groundwater levels were gauged at all wells before sampling, to the extent practicable. Selected locations were unable to be gauged for various reasons, as detailed below in Table 5-1. Regional groundwater flow was interpreted to be in a south-easterly direction towards Skeleton Creek, consistent with the previous monitoring event during the DSI (Aurecon, 2020).

Table 5-1 Summary of Results

| Activity                 | Details  |
|--------------------------|--|
| Deviations from OMP SAQP | <ul style="list-style-type: none"> <li>&gt; Three groundwater wells were not located and are presumed to be buried beneath concrete or new landscaping/vegetation and likely destroyed, hence were not gauged.</li> <li>&gt; Three groundwater wells were not gauged as they were inaccessible due to rusted gatic covers.</li> <li>&gt; Four surface water locations were not sampled as the locations were found to be dry at the time of sampling.</li> </ul> |

|   |   |
|---|---|
| <p>Groundwater Analytical Results</p>   | <ul style="list-style-type: none"> <li>&gt; 35 groundwater samples were collected in total.</li> <li>&gt; One groundwater sampling location reported a new exceedance of Recreational Water (Health) Criteria for PFOS+PFHxS.</li> <li>&gt; Two groundwater sampling locations reported a new exceedance of Ecological Criteria for PFOS.</li> <li>&gt; One groundwater location reported a first-time detection of PFOS.</li> <li>&gt; One groundwater sampling location reported a first-time detection of PFOA.</li> <li>&gt; Two groundwater locations reported an order of magnitude increase for PFOS compared to the previous event (DSI).</li> <li>&gt; All other concentrations reported during this event were generally consistent with the previous sampling during the DSI.</li> </ul> |
| <p>Surface Water Analytical Results</p> | <ul style="list-style-type: none"> <li>&gt; 19 surface water samples were collected in total.</li> <li>&gt; One surface water location reported a new exceedance of the Recreational Water (Health) Criteria for PFOS+PFHxS.</li> <li>&gt; One surface water location reported a new exceedance of the Ecological Criteria for PFOS.</li> <li>&gt; No surface water sampling locations reported a first-time detection of PFOS, PFOA or PFOS+PFHxS.</li> <li>&gt; One surface water sampling location reported an order of magnitude increase for PFOS, PFOA and PFOS+PFHxS compared to the previous event (DSI).</li> <li>&gt; All other concentrations reported during this event were generally consistent with the previous sampling during the DSI.</li> </ul>                                 |
| <p>Next Scheduled Monitoring Event</p>  | <ul style="list-style-type: none"> <li>&gt; The next OMP monitoring event is scheduled for August 2023.</li> <li>&gt; SAQP to be reviewed and updated as required prior to the next monitoring event.</li> </ul>  |

## 6 References

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### General References

1. Australian and New Zealand Guidelines (2018), Australian and New Zealand Guidelines for Fresh and Marine Water Quality.
2. Australian Standard (2005), AS 4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 – Non-volatile and semi-volatile compounds (withdrawn as pending revision, referred to for 'state of knowledge').
3. Department of Defence (2019), Pollution Prevention Management Manual – Annex 1L: Pollution Prevention Guidance - Routine Water Quality Monitoring.
4. Department of Defence (2021a), PFAS OMP Factual Report Guidance, May 2021.
5. Department of Defence (2021b), Contamination Management Manual (DCMM), Annex L – Data Management, August 2019, Amended June 2021.
6. Department of Defence (2022), PFAS OMP Annual Interpretive Report Guidance, Version 0.4, October 2022.
7. Department of Defence, Department of Energy (2018), Quality System Manual Schedule B15 USEPA DQO Process.
8. EPA Victoria (2009), Industrial Waste Resources Guidelines (IWRG), Sampling and Analysis of Waters, Wastewaters, Soils and Wastes, Publication 701.
9. EPA Victoria (2020), Interim Position Statement on PFAS, Publication 1669.4.
10. EPA Victoria (2022), Groundwater Sampling Guidelines, Publication 669.1, February 2022.
11. The Heads of EPAs Australia and New Zealand (HEPA; 2020) PFAS National Environmental Management Plan (NEMP), Version 2.0, January 2020.
12. National Environment Protection Council (NEPC; 2013), National Environmental Protection (Assessment of Site Contamination) Measure (as amended), registered May 2013.
13. National Health and Medical Research Council (2011 – updated 2018) National Water Quality Management Strategy Australian Drinking Water Guidelines 6, August 2018.
14. National Health and Medical Research Council (NHMRC; 2019, Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water, August 2019.
15. Standards Australia/Standards New Zealand (1998), AS5667.1:1998 'Water Quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.'
16. U.S. Environmental Protection Agency (USEPA; 2006), Guidance for the Data Quality Objectives Process (EPA QA/G-4).
17. USEPA (2002), Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8), November 2002.

### Site Specific References

18. Aurecon Australasia Pty Ltd (2020). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)- Detailed Site Investigation*, Prepared for the Department of Defence, November 2020.
19. Aurecon Australasia Pty Ltd (2021). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)- Detailed Site Investigation Addendum*, Prepared for the Department of Defence, December 2021.

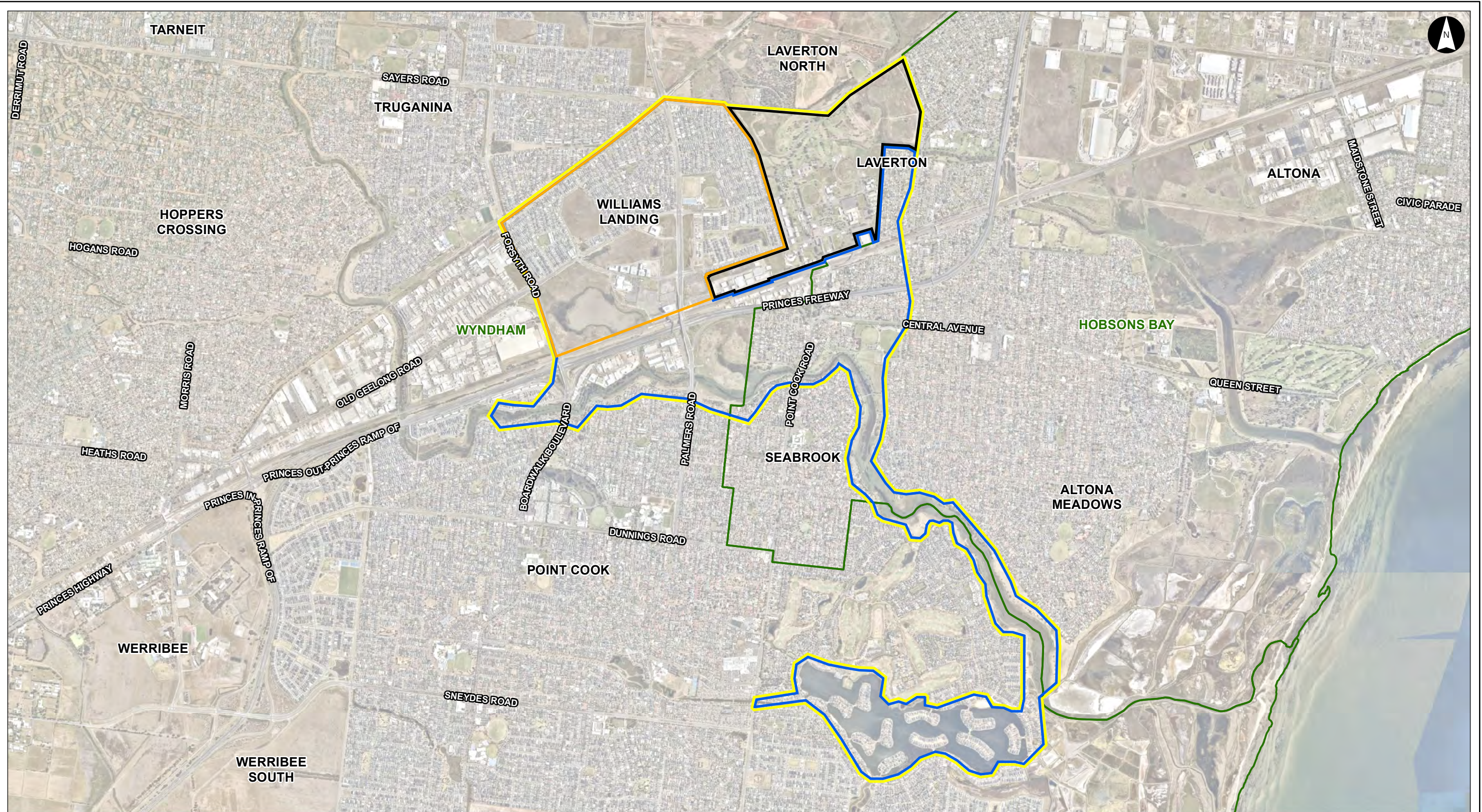
20. Aurecon Australasia Pty Ltd (2022a). *Ongoing Management Plan at RAAF Williams (Laverton)-*, Prepared for the Department of Defence, August 2022.
21. Aurecon Australasia Pty Ltd (2022b). *PFAS Management Area Plan at RAAF Williams (Laverton)-*, Prepared for the Department of Defence, August 2022.
22. Cardno (2023). *PFAS Ongoing Monitoring Plan Sampling and Analysis Quality Plan (SAQP), RAAF Williams (Laverton)*, Rev 2, 11 May 2023.

APPENDIX

A

FIGURES





### Site Locality Plan

RAAF Williams Laverton  
Biannual Sampling  
Client: Department of Defence  
Project Code: DEF19008  
Map: DEF19008-GS-0274-SiteLocalityPlan\_L  
Drawn By: AL  
Figure No: 1 | Rev: 1  
Date: 2023-04-28

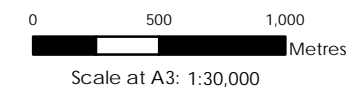


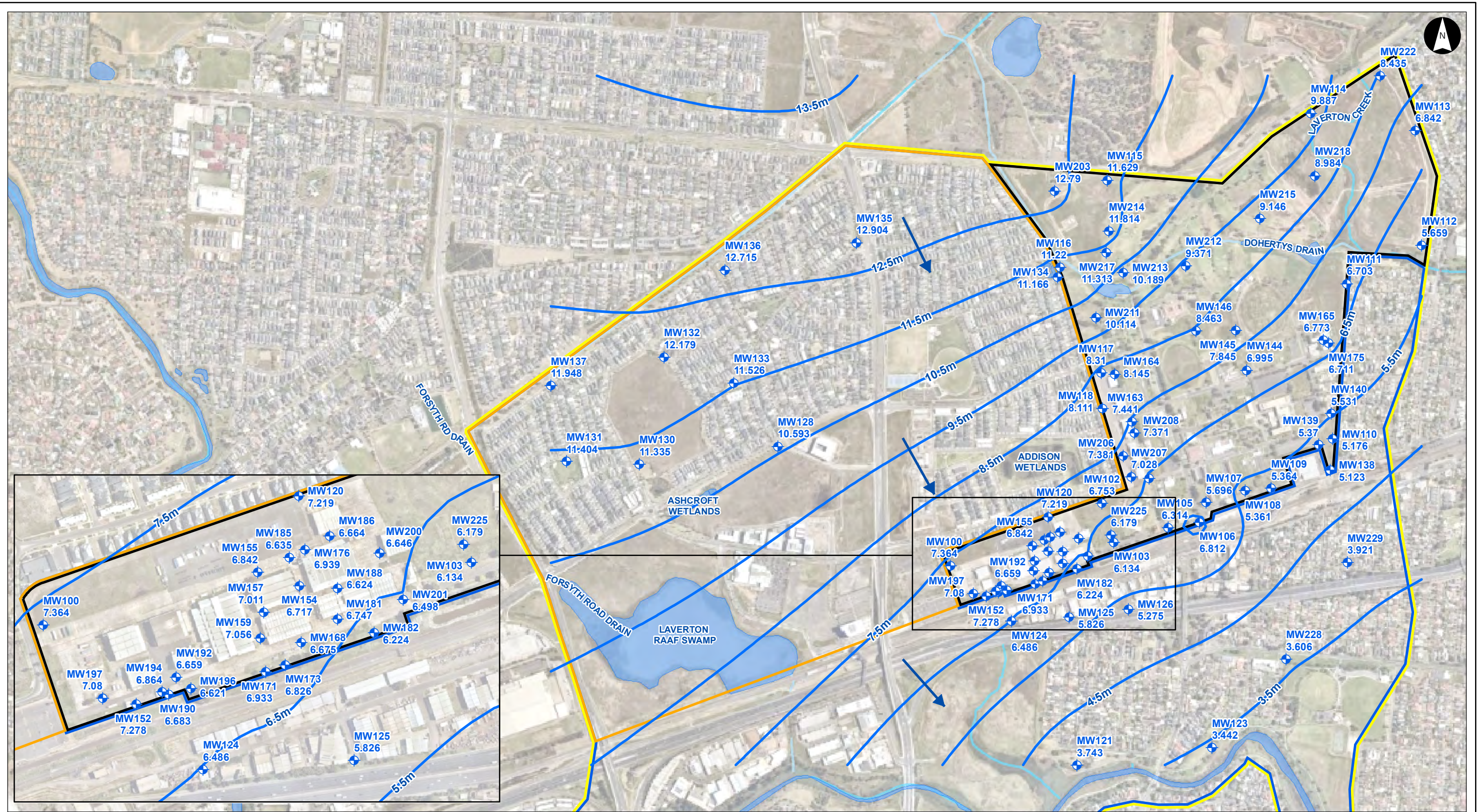
### Legend

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- LGA Boundary

Notes:  
1. Coordinate System: GDA 1994 MGA Zone 55

References:  
1. Aerial Imagery Supplied by Nearmap (January, 2023)  
2. LGA and Road Data Supplied by DELWP





### Groundwater Elevation Contours - March, 2023

RAAF Williams Laverton  
Biannual Sampling

Client: Department of Defence  
Project Code: DEF19008  
Map: DEF19008-GS-0324-GW\_Contours\_E1\_L  
Drawn By: AL  
Figure No: 2 | Rev: 1  
Date: 2023-05-22



#### Legend

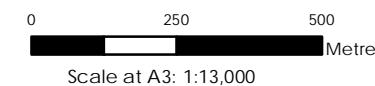
- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- ➔ Groundwater Flow Direction
- Groundwater Elevation Contour (mAHd)
- ⊕ Groundwater Monitoring Well

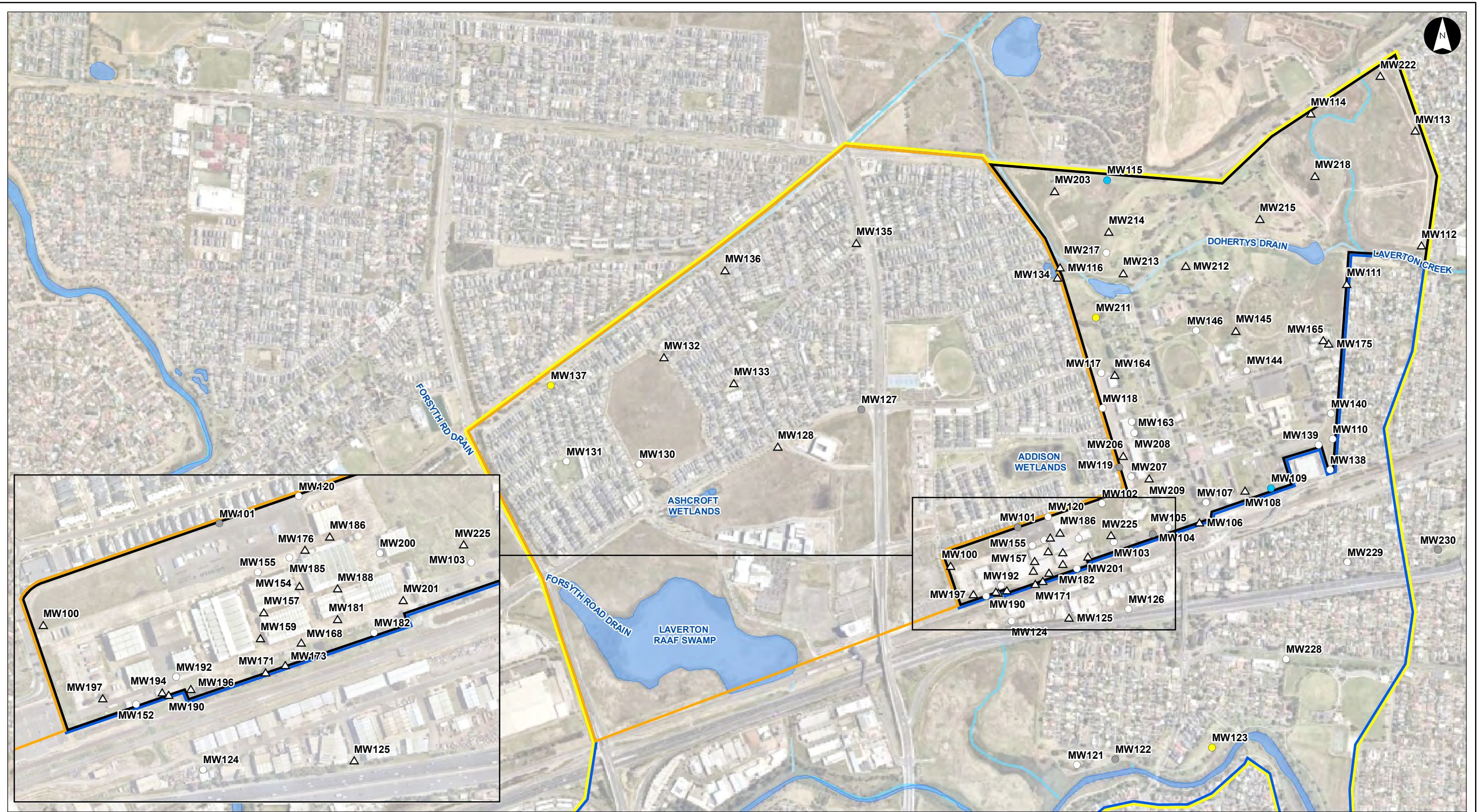
#### Notes:

1. Coordinate System: GDA 1994 MGA Zone 55

#### References:

1. Aerial Imagery Supplied by Nearmap (January, 2023)
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





**Groundwater Concentration Notification  
- March, 2023**

RAAF Williams Laverton  
Biannual Sampling  
  
Client: Department of Defence  
Project Code: DEF19008  
Map: DEF19008-GS-0325-GW\_Conc\_E1\_L  
Drawn By: AL  
Figure No: 3 | Rev: 2  
Date: 2023-06-22

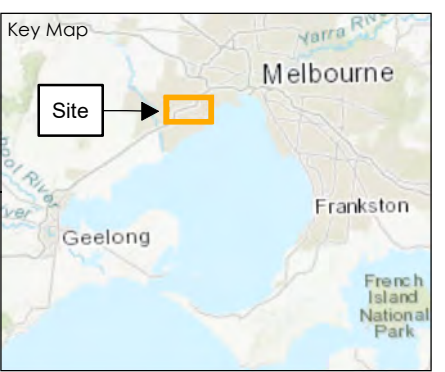
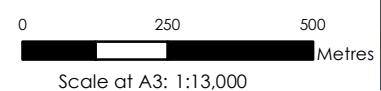


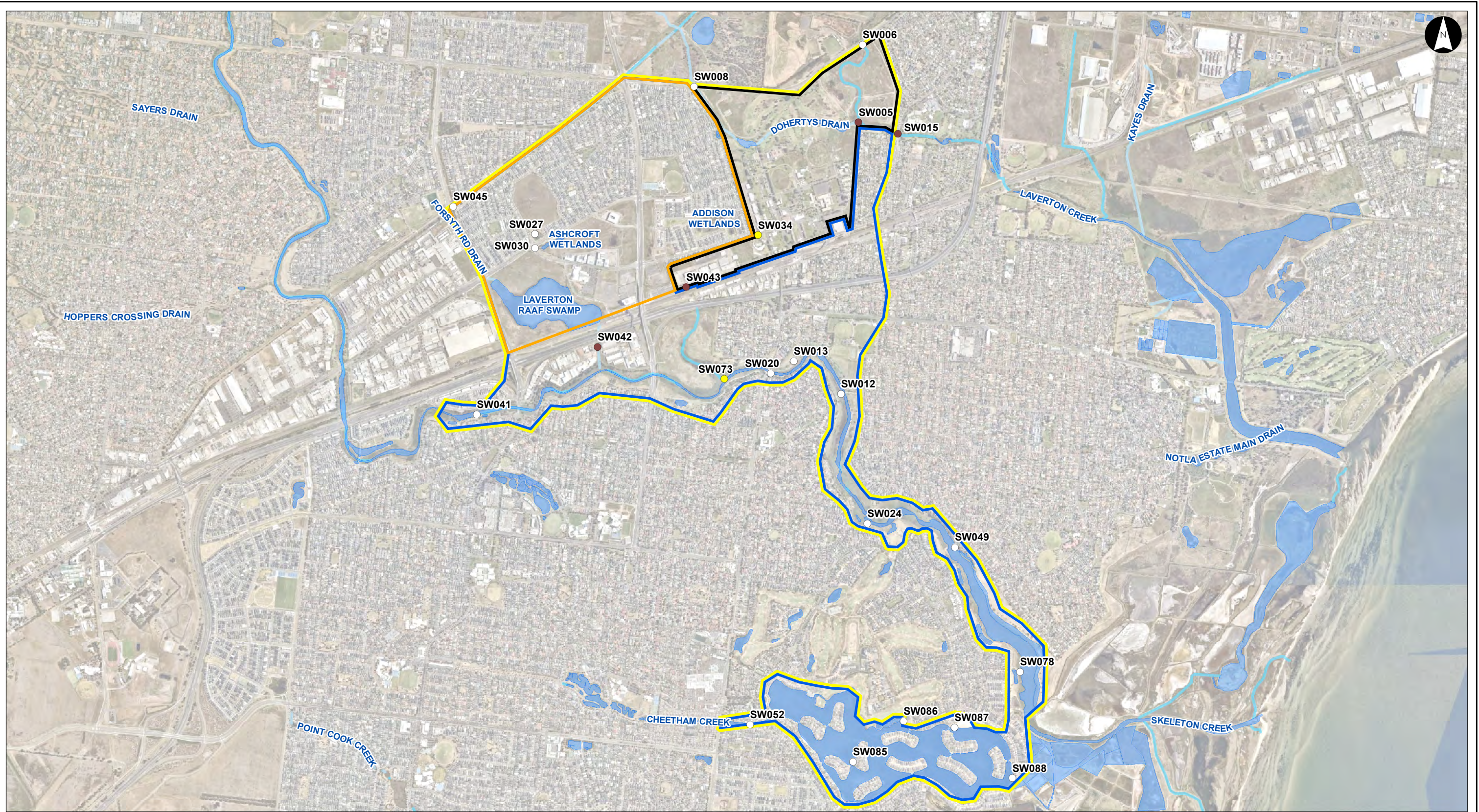
**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Drainage
- Watercourse
- First-time Detection
- New Exceedance
- Inaccessible/Not found/ Not sampled
- △ Gauge Only
- Sampled, 'No first-time detection or new exceedance'
- First-time Detection and New Exceedance of Assessment Criteria

Notes:  
1. Coordinate System: GDA 1994 MGA Zone 55

References:  
1. Aerial Imagery Supplied by Nearmap (January, 2023)  
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





Surface Water Concentration Notification - March, 2023

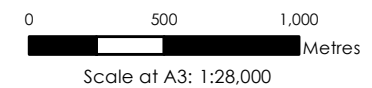
RAAF Williams Laverton  
Biannual Sampling  
Client: Department of Defence  
Project Code: DEF19008  
Map: DEF19008-GS-0326-SW\_Conc\_E1\_L  
Drawn By: AL  
Figure No: 4 | Rev: 2  
Date: 2023-06-19

Legend

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- New Exceedance
- Dry
- Sampled, 'No first-time detection or new exceedance'

Notes:  
1. Coordinate System: GDA 1994 MGA Zone 55

References:  
1. Aerial Imagery Supplied by Nearmap (January, 2023)  
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP



APPENDIX

# B

DATA ASSESSMENT TABLES

|   |                  |             |                   |             |                | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |
|---|------------------|-------------|-------------------|-------------|----------------|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|--------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|
|   |                  |             |                   |             |                | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecane sulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) |
|   |                  |             |                   |             |                | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                 | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              |
| LOR   |                  |             |                   |             |                | 0.01                                 | 0.01                      | 0.01                  | 0.01                                 | 0.01                                   | 0.01                                  | 0.01                                   | 0.01                                 | 0.05                          | 0.01                            | 0.01                           | 0.01                            | 0.01                          | 0.01                          | 0.01                              |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                  |             |                   |             |                |                                      | <b>10</b>                 | <b>2</b>              |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                  |             |                   |             |                | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |
| Location Code                                   | Alternative Name | Sample Date | Field ID          | Sample Type | Lab Report No. | 9.4                                  | 0.36                      | 17.5                  | 1                                    | 1.4                                    | 8.1                                   | 0.8                                    | <0.01                                | 0.26                          | 0.37                            | 2                              | 0.21                            | <0.01                         | <0.01                         | <0.01                             |
| MW102   |                  | 5/02/2019   | 0927_MW102_190205 | Normal      | 639585         | 9.4                                  | 0.36                      | 17.5                  | 1                                    | 1.4                                    | 8.1                                   | 0.8                                    | <0.01                                | 0.26                          | 0.37                            | 2                              | 0.21                            | <0.01                         | <0.01                         | <0.01                             |
|   |                  | 16/03/2023  | 0927_QC201_230316 | Interlab_D  | 973583         | 12                                   | 0.42                      | 21.4                  | 1.2                                  | 1.2                                    | 9.4                                   | 0.53                                   | <0.01                                | 0.37                          | 0.43                            | 2                              | 0.3                             | <0.01                         | <0.01                         | <0.01                             |
|   |                  | 16/03/2023  | 0927_MW102_230316 | Normal      | EM2304822      | 9.32                                 | 0.37                      | 17.4                  | 1.18                                 | 1.37                                   | 8.1                                   | 0.74                                   | <0.02                                | 0.2                           | 0.44                            | 2.05                           | 0.25                            | <0.02                         | <0.02                         | <0.02                             |
| MW103   |                  | 5/02/2019   | 0927_MW103_190205 | Normal      | 639585         | 6.8                                  | 0.27                      | 14                    | 0.85                                 | 1.3                                    | 7.08                                  | 0.63                                   | <0.02                                | 0.2                           | 0.4                             | 1.86                           | 0.22                            | <0.02                         | <0.02                         | <0.02                             |
|   |                  | 16/03/2023  | 0927_MW103_230316 | Normal      | EM2304822      | 5.91                                 | 0.28                      | 14.7                  | 3.17                                 | 2.41                                   | 8.75                                  | 0.24                                   | <0.02                                | 0.3                           | 0.82                            | 4.01                           | 0.2                             | <0.02                         | <0.02                         | <0.02                             |
|   |                  | 16/03/2023  | 0927_QC101_230316 | Field_D     | EM2304822      | 9.99                                 | 0.36                      | 18.1                  | 1.14                                 | 1.23                                   | 8.08                                  | 0.63                                   | <0.02                                | 0.2                           | 0.4                             | 1.86                           | 0.22                            | <0.02                         | <0.02                         | <0.02                             |
| MW105   |                  | 5/02/2019   | 0927_MW105_190205 | Normal      | 639585         | 41                                   | 1.2                       | 63                    | 1.7                                  | 2.3                                    | 22                                    | 1.5                                    | <0.01                                | 0.58                          | 0.7                             | 5                              | 0.42                            | <0.01                         | <0.01                         | <0.01                             |
|   |                  | 16/03/2023  | 0927_MW105_230316 | Normal      | EM2304822      | 69.8                                 | 4.04                      | 183                   | 15.5                                 | 17.4                                   | 113                                   | 3.76                                   | <0.02                                | 1.3                           | 7.88                            | 51.6                           | 2.86                            | 0.02                          | <0.02                         | <0.02                             |
| MW107   |                  | 4/02/2019   | 0927_MW107_190204 | Normal      | 639585         | 0.25                                 | 0.14                      | 4.25                  | 0.51                                 | 0.69                                   | 4                                     | 0.13                                   | <0.01                                | 0.11                          | 0.15                            | 0.93                           | 0.1                             | <0.01                         | <0.01                         | <0.01                             |
|   |                  | 16/03/2023  | 0927_MW107_230316 | Normal      | EM2304822      | 0.42                                 | 0.17                      | 4.78                  | 0.64                                 | 0.76                                   | 4.36                                  | 0.15                                   | <0.02                                | <0.1                          | 0.2                             | 1.08                           | 0.14                            | <0.02                         | <0.02                         | <0.02                             |
| MW109   |                  | 4/02/2019   | 0927_MW109_190204 | Normal      | 639585         | 0.17                                 | <0.01                     | 0.3                   | 0.01                                 | 0.01                                   | 0.13                                  | <0.01                                  | <0.01                                | <0.05                         | <0.01                           | 0.02                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             |
|   |                  | 17/03/2023  | 0927_MW109_230317 | Normal      | EM2304822      | 0.41                                 | 0.01                      | 0.81                  | 0.04                                 | 0.05                                   | 0.4                                   | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | 0.06                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             |
| MW110   |                  | 4/02/2019   | 0927_MW110_190204 | Normal      | 639585         | 40                                   | 1.6                       | 76                    | 4.8                                  | 5                                      | 36                                    | 1.8                                    | <0.01                                | 0.93                          | 1.2                             | 8.8                            | 0.74                            | <0.01                         | <0.01                         | <0.01                             |
|   |                  | 31/10/2019  | 0927_MW110_191031 | Normal      | 686044         | 56                                   | 2.3                       | 108                   | 3.2                                  | 3.3                                    | 52                                    | 1.4                                    | <0.01                                | 0.88                          | 1.2                             | 11                             | 0.87                            | 0.02                          | <0.01                         | <0.01                             |
|   |                  |             | 0927_QC101_191031 | Field_D     | 686044         | 51                                   | 1.5                       | 97                    | 3.7                                  | 3.9                                    | 46                                    | 1.4                                    | <0.01                                | 0.84                          | 1.3                             | 9.6                            | 0.93                            | 0.02                          | <0.01                         | <0.01                             |
|   |                  |             | 0927_QC201_191031 | Interlab_D  | EM1918707      | 78.2                                 | 1.76                      | 134                   | 6.02                                 | 5.82                                   | 55.7                                  | 2.84                                   | <0.02                                | 1                             | 1.78                            | 11.2                           | 0.78                            | <0.02                         | <0.02                         | <0.02                             |
| MW115   |                  | 16/03/2023  | 0927_MW110_230316 | Normal      | EM2304822      | 59.1                                 | 1.37                      | 94.7                  | 3.88                                 | 5.54                                   | 35.6                                  | 2.37                                   | <0.02                                | 0.3                           | 1.28                            | 7.88                           | 0.66                            | <0.02                         | <0.02                         | <0.02                             |
|   |                  | 4/02/2019   | 0927_MW115_190204 | Normal      | 639585         | <0.01                                | <0.01                     | 0.01                  | <0.01                                | <0.01                                  | 0.01                                  | <0.01                                  | <0.01                                | <0.05                         | <0.01                           | 0.01                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             |
| MW117   |                  | 16/03/2023  | 0927_MW115_230316 | Normal      | EM2304822      | 0.02                                 | <0.01                     | 0.03                  | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                                | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             |
|   |                  | 5/02/2019   | 0927_MW117_190205 | Normal      | 639585         | 19                                   | 2.1                       | 78                    | 7.9                                  | 11                                     | 59                                    | 2.2                                    | <0.01                                | 1.6                           | 2.5                             | 18                             | 1.4                             | <0.01                         | <0.01                         | <0.01                             |
| MW118   |                  | 16/03/2023  | 0927_MW117_230316 | Normal      | EM2304822      | 12.1                                 | 1.53                      | 66.4                  | 10.3                                 | 12.3                                   | 54.3                                  | 1.81                                   | <0.02                                | 0.6                           | 2.85                            | 16.8                           | 1.22                            | <0.02                         | <0.02                         | <0.02                             |
|   |                  | 5/02/2019   | 0927_MW118_190205 | Normal      | 639585         | 18                                   | 0.55                      | 30                    | 1.6                                  | 1.7                                    | 12                                    | 1.1                                    | <0.01                                | 0.34                          | 0.5                             | 3.6                            | 0.31                            | <0.01                         | <0.01                         | <0.01                             |
|   |                  |             | 0927_QC124_190205 | Field_D     | 639585         | 21                                   | 0.53                      | 35                    | 1.7                                  | 1.8                                    | 14                                    | 1.2                                    | <0.01                                | 0.35                          | 0.63                            | 3.7                            | 0.32                            | <0.01                         | <0.01                         | <0.01                             |
|   |                  |             | 0927_QC224_190205 | Interlab_D  | EM1901728      | 19.1                                 | 0.6                       | 33.4                  | 1.95                                 | 2.19                                   | 14.3                                  | 0.76                                   | <0.02                                | 0.3                           | 0.61                            | 3.59                           | 0.4                             | <0.02                         | <0.02                         | <0.02                             |
| MW120   |                  | 16/03/2023  | 0927_MW118_230316 | Normal      | EM2304822      | 21.1                                 | 1.43                      | 51.9                  | 4.44                                 | 6.14                                   | 30.8                                  | 1.88                                   | <0.02                                | 0.4                           | 1.3                             | 6.29                           | 0.72                            | <0.02                         | <0.02                         | <0.02                             |
|   |                  | 5/02/2019   | 0927_MW120_190205 | Normal      | 639585         | 1.3                                  | 0.09                      | 3.4                   | 0.3                                  | 0.32                                   | 2.1                                   | 0.11                                   | <0.01                                | 0.08                          | 0.1                             | 0.55                           | 0.05                            | <0.01                         | <0.01                         | <0.01                             |
|   |                  | 16/03/2023  | 0927_MW120_230316 | Normal      | EM2304822      | 5.17                                 | 0.31                      | 11.2                  | 1.37                                 | 1.17                                   | 6.05                                  | 0.27                                   | <0.02                                | 0.2                           | 0.56                            | 2.51                           | 0.2                             | <0.02                         | <0.02                         | <0.02                             |

|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) |
|   | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              |
| LOR   | 0.01                                 | 0.01                      | 0.01                  | 0.01                                 | 0.01                                   | 0.01                                  | 0.01                                   | 0.01                                | 0.05                          | 0.01                            | 0.01                           | 0.01                            | 0.01                          | 0.01                          | 0.01                              |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                     |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |

| Location Code | Alternative Name | Sample Date | Field ID            | Sample Type | Lab Report No. | PFOS | PFOA | Sum of PFHxS and PFOS | PFBS | PFPeS | PFHxS | PFHpS | PFDS  | PFBA  | PFPeA | PFHxA | PFHpA | PFNA  | PFDA  | PFUnDA |
|---------------|------------------|-------------|---------------------|-------------|----------------|------|------|-----------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| MW121         |                  | 24/01/2020  | 0927_MW121_200124   | Normal      | 698820         | 0.15 | 0.01 | 0.5                   | 0.04 | 0.05  | 0.35  | <0.01 | <0.01 | <0.05 | 0.03  | 0.08  | <0.01 | <0.01 | <0.01 | <0.01  |
|               |                  | 17/03/2023  | 0927_MW121_230317   | Normal      | EM2304823      | 0.35 | 0.02 | 0.81                  | 0.04 | 0.05  | 0.46  | 0.02  | <0.02 | <0.1  | 0.02  | 0.1   | <0.02 | <0.02 | <0.02 | <0.02  |
| MW123         |                  | 24/01/2020  | 0927_MW123_200124   | Normal      | 698820         | 0.71 | 0.05 | 1.81                  | 0.12 | 0.14  | 1.1   | 0.06  | <0.01 | <0.05 | 0.05  | 0.22  | 0.03  | <0.01 | <0.01 | <0.01  |
|               |                  | 17/03/2023  | 0927_MW123_230317   | Normal      | EM2304823      | 1.6  | 0.05 | 2.78                  | 0.14 | 0.14  | 1.18  | 0.08  | <0.02 | <0.1  | 0.05  | 0.26  | 0.03  | <0.02 | <0.02 | <0.02  |
| MW124         |                  | 18/07/2019  | 0927_MW124_190718   | Normal      |                | 3.1  | 0.2  | 3.96                  | -    | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -      |
|               |                  | 17/03/2023  | 0927_MW124_230317   | Normal      | EM2304823      | 1.11 | 0.07 | 1.59                  | 0.06 | 0.05  | 0.48  | 0.02  | <0.02 | <0.1  | 0.02  | 0.07  | 0.02  | <0.02 | <0.02 | <0.02  |
| MW126         |                  | 17/07/2019  | 0927_MW126_190717   | Normal      |                | 0.6  | 0.01 | 0.28                  | -    | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -      |
|               |                  | 17/03/2023  | 0927_MW126_230317   | Normal      | EM2304823      | 0.04 | 0.03 | 0.21                  | 0.08 | 0.03  | 0.17  | <0.02 | <0.02 | <0.1  | 0.13  | 0.13  | 0.03  | <0.02 | <0.02 | <0.02  |
| MW130         |                  | 19/07/2019  | 0927_MW130_190719   | Normal      |                | 3.4  | 0.57 | 15.4                  | -    | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -      |
|               |                  | 17/03/2023  | 0927_MW130_230317   | Normal      | EM2304823      | 6.51 | 2.12 | 53.9                  | 10.7 | 14.2  | 47.4  | 1.27  | <0.02 | 0.9   | 4.33  | 20.8  | 1.91  | <0.02 | <0.02 | <0.02  |
| MW131         |                  | 19/07/2019  | 0927_MW131_190719   | Normal      |                | 2.2  | 0.55 | 11.9                  | -    | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -      |
|               |                  | 17/03/2023  | 0927_MW131_230317   | Normal      | EM2304823      | 43.4 | 3.28 | 106                   | 10.1 | 15    | 62.5  | 3.4   | <0.02 | 0.9   | 4.32  | 21.2  | 2.08  | 0.02  | <0.02 | <0.02  |
| MW137         |                  | 16/07/2019  | 0927_MW137_190716   | Normal      | 666870         | 0.04 | 0.01 | 0.31                  | 0.13 | 0.09  | 0.27  | <0.01 | <0.01 | 0.07  | 0.04  | 0.17  | 0.01  | <0.01 | <0.01 | <0.01  |
| MW137         |                  | 22/03/2023  | 0927_MW137_230322   | Normal      | EM2307274      | 0.68 | 0.04 | 0.98                  | 0.09 | 0.05  | 0.3   | <0.02 | <0.02 | <0.1  | 0.04  | 0.1   | <0.02 | <0.02 | <0.02 | <0.02  |
| MW138         |                  | 24/01/2020  | 0927_MW138_200124   | Normal      | 698820         | 3.6  | 0.2  | 8.1                   | 0.51 | 0.64  | 4.5   | 0.19  | <0.01 | 0.14  | 0.19  | 0.93  | 0.09  | <0.01 | <0.01 | <0.01  |
|               |                  |             | 0927_QC101_200124   | Field_D     | 698820         | 2.6  | 0.18 | 6.7                   | 0.52 | 0.63  | 4.1   | 0.17  | <0.01 | 0.13  | 0.17  | 0.9   | 0.09  | <0.01 | <0.01 | <0.01  |
|               |                  | 24/01/2020  | 0927_QC201_200124   | Interlab_D  | EM2001369      | 5.22 | 0.16 | 9.74                  | 0.58 | 0.67  | 4.52  | 0.24  | <0.02 | 0.1   | 0.18  | 0.98  | 0.08  | <0.02 | <0.02 | <0.02  |
|               |                  | 16/03/2023  | 0927_MW138_230316   | Normal      | EM2304822      | 3.65 | 0.16 | 8.89                  | 1    | 0.92  | 5.24  | 0.2   | <0.02 | <0.1  | 0.21  | 1.13  | 0.1   | <0.02 | <0.02 | <0.02  |
| MW139         |                  | 24/01/2020  | 0927_MW139_200124   | Normal      | 698820         | 44   | 1.8  | 87                    | 2.7  | 4.4   | 43    | 0.96  | 0.11  | 0.88  | 1.5   | 12    | 0.8   | 0.03  | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW139_230316   | Normal      | EM2304822      | 6.33 | 0.47 | 22.3                  | 1.33 | 2.32  | 16    | 0.41  | <0.02 | <0.1  | 0.6   | 4.11  | 0.26  | <0.02 | <0.02 | <0.02  |
| MW140         |                  | 24/01/2020  | 0927_MW140_200124   | Normal      | 698820         | 0.44 | 0.02 | 1.19                  | 0.09 | 0.1   | 0.75  | 0.02  | <0.01 | <0.05 | 0.03  | 0.12  | 0.01  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW140_230316   | Normal      | EM2304822      | 0.44 | 0.02 | 0.96                  | 0.1  | 0.08  | 0.52  | <0.02 | <0.02 | <0.1  | 0.03  | 0.12  | <0.02 | <0.02 | <0.02 | <0.02  |
| MW144         | GW130/1          | 16/08/2018  | 0927_GW130/1_180816 | Normal      | 613048         | 1.5  | 0.03 | 2.3                   | 0.08 | 0.1   | 0.8   | 0.03  | <0.01 | <0.05 | 0.03  | 0.13  | 0.01  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW144_230316   | Normal      | EM2304822      | 0.83 | 0.02 | 1.35                  | 0.07 | 0.07  | 0.52  | 0.02  | <0.02 | <0.1  | <0.02 | 0.09  | <0.02 | <0.02 | <0.02 | <0.02  |
| MW146         | GW130/3          | 16/08/2018  | 0927_GW130/3_180816 | Normal      | 613048         | 1.7  | 0.02 | 2.41                  | 0.08 | 0.09  | 0.71  | 0.04  | <0.01 | <0.05 | 0.03  | 0.11  | 0.01  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW146_230316   | Normal      | EM2304822      | 0.97 | 0.02 | 1.45                  | 0.07 | 0.08  | 0.48  | 0.02  | <0.02 | <0.1  | <0.02 | 0.09  | <0.02 | <0.02 | <0.02 | <0.02  |

| Perfluorocarbons                                |                           |                       |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |
|---|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|--------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|
| Perfluorooctane sulfonic acid (PFOS)            | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecane sulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) |
| µg/L  | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                 | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              |
| LOR   | 0.01                      | 0.01                  | 0.01                                 | 0.01                                   | 0.01                                  | 0.01                                   | 0.01                                 | 0.01                          | 0.05                            | 0.01                           | 0.01                            | 0.01                          | 0.01                          | 0.01                              |
| PFAS NEMP 2.0 Table 1 Health Recreational Water | <b>10</b>                 | <b>2</b>              |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                      | 220                   |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |

| Location Code | Alternative Name | Sample Date | Field ID            | Sample Type | Lab Report No. | PFOS | PFOA        | Sum of PFHxS and PFOS | PFBS | PFPeS | PFHxS | PFHpS | PFDS  | PFBA | PFPeA | PFHxA | PFHpA | PFNA  | PFDA  | PFUnDA |
|---------------|------------------|-------------|---------------------|-------------|----------------|------|-------------|-----------------------|------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|--------|
| MW152         | GW155/6          | 19/05/2016  | 0927-GW 155/6       | Normal      | 501516         | 0.55 | 0.31        | -                     | 1.4  | -     | 3.4   | -     | <0.01 | 0.16 | 0.44  | 2.3   | 0.4   | 0.01  | <0.01 | <0.01  |
|               |                  | 17/08/2018  | 0927_GW155/6_180817 | Normal      | 613048         | 19   | 0.4         | <b>27.4</b>           | 0.98 | 1.6   | 8.4   | 0.58  | 0.02  | 0.37 | 0.54  | 2.1   | 0.36  | 0.02  | <0.01 | <0.01  |
|               |                  | 17/03/2023  | 0927_MW152_230317   | Normal      | EM2304822      | 8.53 | 0.4         | <b>19</b>             | 3.3  | 3.04  | 10.5  | 0.49  | <0.02 | 0.4  | 0.69  | 2.58  | 0.42  | 0.02  | <0.02 | <0.02  |
| MW155         | GW2/2            | 19/05/2016  | 0927-GW2/2          | Normal      | 501516         | 0.79 | 0.22        | -                     | 0.16 | -     | 0.86  | -     | <0.01 | 0.19 | 0.51  | 0.51  | 0.3   | 0.01  | <0.01 | <0.01  |
|               |                  | 13/08/2018  | 0927_GW2/2_180813   | Normal      | 612558         | 5.1  | 0.38        | <b>6.6</b>            | 0.16 | 0.19  | 1.5   | 0.09  | <0.01 | 0.33 | 0.79  | 0.73  | 0.43  | 0.02  | <0.01 | <0.01  |
|               |                  |             | 0927_QC107_180813   | Field_D     | 612558         | 4.4  | 0.44        | <b>6.2</b>            | 0.2  | 0.37  | 1.8   | 0.18  | 0.02  | 0.37 | 0.86  | 0.96  | 0.48  | 0.02  | <0.01 | <0.01  |
|               |                  | 13/08/2018  | 0927_QC207_180813   | Interlab_D  | EM1813168      | 4.02 | 0.45        | <b>6.18</b>           | 0.18 | 0.21  | 2.16  | 0.11  | <0.02 | 0.3  | 0.97  | 0.96  | 0.49  | 0.02  | <0.02 | <0.02  |
|               |                  | 16/03/2023  | 0927_MW155_230316   | Normal      | EM2304822      | 2.65 | 0.24        | <b>3.7</b>            | 0.11 | 0.14  | 1.05  | 0.07  | <0.02 | <0.1 | 0.38  | 0.45  | 0.23  | <0.02 | <0.02 | <0.02  |
| MW163         | GW34/1           | 19/05/2016  | 0927-GW34/1         | Normal      | 501516         | 1500 | <b>38</b>   | -                     | 110  | -     | 770   | -     | 0.02  | 15   | 34    | 210   | 21    | <0.01 | <0.01 | 0.02   |
|               |                  | 3/08/2018   | 0927_GW34/1_180803  | Normal      | 610856         | 720  | <b>40</b>   | <b>1360</b>           | 75   | 91    | 640   | 30    | <0.2  | 20   | 31    | 180   | 15    | <0.2  | <0.2  | <0.2   |
|               |                  | 16/03/2023  | 0927_MW163_230316   | Normal      | EM2304822      | 552  | <b>18.1</b> | <b>821</b>            | 31.4 | 36.5  | 269   | 33    | 0.26  | 3    | 12.3  | 70.9  | 7.8   | 0.11  | <0.02 | <0.02  |
| MW182         | GW7/15           | 16/08/2018  | 0927_GW7/15_180816  | Normal      | 613048         | 2.2  | 0.11        | <b>5.8</b>            | 0.46 | 1     | 3.6   | 0.29  | <0.01 | 0.1  | 0.12  | 0.84  | 0.06  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW182_230316   | Normal      | EM2304822      | 1.1  | 0.07        | <b>3.68</b>           | 0.31 | 0.31  | 2.58  | 0.07  | <0.02 | <0.1 | 0.07  | 0.39  | 0.03  | <0.02 | <0.02 | <0.02  |
| MW185         | GW7/5            | 19/05/2016  | 0927-GW7/5          | Normal      | 501516         | 0.08 | 0.06        | -                     | 0.16 | -     | 0.57  | -     | <0.01 | 0.06 | 0.13  | 0.3   | 0.08  | <0.01 | <0.01 | <0.01  |
|               |                  | 13/08/2018  | 0927_GW7/5_180813   | Normal      | 612558         | 2.4  | 0.07        | <b>4</b>              | 0.11 | 0.17  | 1.6   | 0.07  | <0.01 | 0.07 | 0.1   | 0.26  | 0.05  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW185_230316   | Normal      | EM2304822      | 1.62 | 0.05        | <b>2.79</b>           | 0.07 | 0.12  | 1.17  | 0.07  | <0.02 | <0.1 | 0.04  | 0.17  | 0.03  | <0.02 | <0.02 | <0.02  |
| MW192         | GW81/3           | 19/05/2016  | 0927-GW 81/3        | Normal      | 501516         | 1.9  | 0.13        | -                     | 0.59 | -     | 2.7   | -     | <0.01 | 0.11 | 0.22  | 1.1   | 0.13  | <0.01 | <0.01 | <0.01  |
|               |                  | 9/08/2018   | 0927_GW81/3_180809  | Normal      | 611851         | 6.9  | 0.21        | <b>12.2</b>           | 0.58 | 0.84  | 5.3   | 0.27  | <0.01 | 0.17 | 0.34  | 1.6   | 0.14  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW192_230316   | Normal      | EM2304822      | 2.66 | 0.09        | <b>4.46</b>           | 0.25 | 0.23  | 1.8   | 0.11  | <0.02 | <0.1 | 0.07  | 0.44  | 0.04  | <0.02 | <0.02 | <0.02  |
| MW200         | GW90/2           | 14/08/2018  | 0927_GW90/2_180814  | Normal      | 612558         | 18   | 0.41        | <b>23.8</b>           | 0.92 | 1.8   | 5.8   | 1.1   | 0.03  | 0.39 | 0.56  | 3.3   | 0.46  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_QC200_230316   | Interlab_D  | 973583         | 11   | 0.28        | <b>15.9</b>           | 0.98 | 0.77  | 4.9   | 0.26  | <0.01 | 0.33 | 0.41  | 2     | 0.31  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW200_230316   | Normal      | EM2304822      | 7.94 | 0.23        | <b>12.1</b>           | 0.83 | 0.74  | 4.13  | 0.28  | <0.02 | 0.2  | 0.32  | 1.69  | 0.23  | <0.02 | <0.02 | <0.02  |
|               |                  | 16/03/2023  | 0927_QC100_230316   | Field_D     | EM2304822      | 8.44 | 0.23        | <b>12.6</b>           | 0.86 | 0.75  | 4.19  | 0.29  | <0.02 | 0.1  | 0.32  | 1.71  | 0.23  | <0.02 | <0.02 | <0.02  |
| MW207         | GWAM/4           | 6/08/2018   | 0927_GWAM/4_180806  | Normal      | 611486         | 15   | 0.34        | <b>23.4</b>           | 0.85 | 1.5   | 8.4   | 0.73  | <0.01 | 0.21 | 0.31  | 2.1   | 0.23  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW207_230316   | Normal      | EM2304822      | 11.3 | 0.5         | <b>21.3</b>           | 0.86 | 1.1   | 10    | 0.73  | <0.02 | 0.1  | 0.32  | 1.68  | 0.22  | <0.02 | <0.02 | <0.02  |



| Perfluorocarbons                                |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |
|---|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|
| Perfluorooctane sulfonic acid (PFOS)            | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) |
| µg/L  | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              |
| LOR   | 0.01                      | 0.01                  | 0.01                                 | 0.01                                   | 0.01                                  | 0.01                                   | 0.01                                | 0.05                          | 0.01                            | 0.01                           | 0.01                            | 0.01                          | 0.01                          | 0.01                              |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                           | <b>10</b>             | <b>2</b>                             |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                      | 220                   |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |

| Location Code | Alternative Name | Sample Date | Field ID           | Sample Type | Lab Report No. | PFOS        | PFOA  | Sum of PFHxS and PFOS | PFBS  | PFPeS | PFHxS | PFHpS | PFDS  | PFBA        | PFPeA       | PFHxA | PFHpA | PFNA  | PFDA  | PFUnDA |
|---------------|------------------|-------------|--------------------|-------------|----------------|-------------|-------|-----------------------|-------|-------|-------|-------|-------|-------------|-------------|-------|-------|-------|-------|--------|
| MW208         | GWAM/5           | 19/05/2016  | 0927-GWAM/5        | Normal      | 501516         | 16          | 0.34  | -                     | 1.3   | -     | 14    | -     | <0.01 | 0.16        | 0.35        | 1.7   | 0.19  | <0.01 | <0.01 | <0.01  |
|               |                  | 3/08/2018   | 0927_GWAM/5_180803 | Normal      | 610856         | 72          | 1     | <b>87</b>             | 1.8   | 2.2   | 15    | 1.3   | 0.3   | 0.39        | 0.67        | 3.7   | 0.37  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_QC202_230316  | Interlab_D  | 973583         | 210         | 5.3   | <b>290</b>            | 10    | 11    | 80    | 5     | <1    | 2.1         | 3           | 14    | 2.3   | <1    | <1    | <0.01  |
|               |                  | 16/03/2023  | 0927_MW208_230316  | Normal      | EM2304822      | 128         | 3.43  | <b>185</b>            | 7.75  | 9.62  | 57    | 4.46  | 0.06  | 1.2         | 2.56        | 11.6  | 1.85  | <0.02 | <0.02 | <0.02  |
|               |                  | 16/03/2023  | 0927_QC102_230316  | Field_D     | EM2304822      | 120         | 3.45  | <b>176</b>            | 6.9   | 8.76  | 55.7  | 4.01  | 0.06  | 1.2         | 2.58        | 10.1  | 1.78  | <0.02 | <0.02 | <0.02  |
| MW211         | GWB/2            | 15/08/2018  | 0927_GWB/2_180815  | Normal      | 612558         | 0.05        | 0.01  | 0.48                  | 0.07  | 0.09  | 0.43  | <0.01 | <0.01 | <0.05       | 0.02        | 0.08  | <0.01 | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_QC203_230316  | Interlab_D  | 973583         | <b>0.14</b> | 0.02  | 0.75                  | 0.09  | 0.1   | 0.61  | 0.02  | <0.01 | <0.05       | 0.03        | 0.1   | 0.01  | <0.01 | <0.01 | <0.01  |
|               |                  | 16/03/2023  | 0927_MW211_230316  | Normal      | EM2304822      | 0.11        | 0.02  | 0.55                  | 0.07  | 0.07  | 0.44  | <0.02 | <0.02 | <0.1        | <0.02       | 0.07  | <0.02 | <0.02 | <0.02 | <0.02  |
|               |                  | 16/03/2023  | 0927_QC103_230316  | Field_D     | EM2304822      | 0.09        | 0.02  | 0.55                  | 0.07  | 0.06  | 0.46  | <0.02 | <0.02 | <0.1        | <0.02       | 0.07  | <0.02 | <0.02 | <0.02 | <0.02  |
| MW217         | GWGA01           | 16/08/2018  | 0927_GWGA01_180816 | Normal      | 613048         | 0.05        | <0.01 | 0.24                  | 0.03  | 0.03  | 0.19  | <0.01 | <0.01 | <0.05       | <0.01       | 0.03  | <0.01 | <0.01 | <0.01 | <0.01  |
|               |                  | 17/03/2023  | 0927_MW217_230317  | Normal      | EM2304822      | 0.03        | <0.01 | 0.12                  | <0.02 | <0.02 | 0.09  | <0.02 | <0.02 | <0.1        | <0.02       | <0.02 | <0.02 | <0.02 | <0.02 | <0.02  |
| MW228         |                  | 10/03/2021  | 0927_MW228_210310  | Normal      | 779659         | 9.9         | 0.38  | <b>18.4</b>           | 0.73  | 1.4   | 8.5   | 0.69  | <0.01 | <b>0.23</b> | <b>0.32</b> | 1.7   | 0.21  | <0.01 | <0.01 | <0.01  |
|               |                  | 17/03/2023  | 0927_MW228_230317  | Normal      | EM2304823      | 2.35        | 0.08  | <b>4.36</b>           | 0.25  | 0.23  | 2.01  | 0.13  | <0.02 | <0.1        | 0.07        | 0.46  | 0.05  | <0.02 | <0.02 | <0.02  |
|               |                  | 17/04/2023  | 0927_MW228_230317  | Normal      | EM2307379      | 2.35        | 0.08  | <b>4.36</b>           | 0.25  | 0.23  | 2.01  | 0.13  | <0.02 | <0.1        | 0.07        | 0.46  | 0.05  | <0.02 | <0.02 | <0.02  |
| MW229         |                  | 10/03/2021  | 0927_MW229_210310  | Normal      | 779659         | 1.4         | 0.04  | <b>2.33</b>           | 0.08  | 0.12  | 0.93  | 0.04  | <0.01 | <0.05       | 0.05        | 0.16  | 0.02  | <0.01 | <0.01 | <0.01  |
|               |                  |             | 0927_QC100_210310  | Field_D     | 779659         | 1.4         | 0.04  | <b>2.25</b>           | 0.08  | 0.11  | 0.85  | 0.04  | <0.01 | <0.05       | 0.04        | 0.17  | 0.02  | <0.01 | <0.01 | <0.01  |
|               |                  | 10/03/2021  | 0927_QC200_210310  | Interlab_D  | EM2104214      | 0.74        | 0.02  | 1.65                  | 0.09  | 0.07  | 0.91  | 0.02  | <0.02 | <0.1        | <0.02       | 0.14  | <0.02 | <0.02 | <0.02 | <0.02  |
|               |                  | 17/03/2023  | 0927_MW229_230317  | Normal      | EM2304823      | 0.9         | 0.03  | 1.83                  | 0.1   | 0.1   | 0.93  | 0.04  | <0.02 | <0.1        | 0.03        | 0.17  | <0.02 | <0.02 | <0.02 | <0.02  |

Notes

- Denotes first-time detection above LOR in latest monitoring round
- Denotes new exceedance of human health drinking water screening criteria in latest monitoring round

|   |                   |                   |                   |                   |                | Perfluorocarbons                  |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |  |        |      |
|---|-------------------|-------------------|-------------------|-------------------|----------------|-----------------------------------|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|--|--------|------|
|   |                   |                   |                   |                   |                | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTrDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA) * |        |      |
|   |                   |                   |                   |                   |                | µg/L                              | µg/L                               | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L   |        |      |
| LOR   |                   |                   |                   |                   |                | 0.01                              | 0.01                               | 0.01                                 | 0.02                               | 0.05  | 0.05  | 0.05   | 0.05  | 0.02  | 0.02   | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01        | 0.01   | 0.01   |      |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                   |                   |                   |                   |                |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |  |        |      |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                   |                   |                   |                   |                |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |  |        |      |
| Location Code                                   | Alternative Name  | Sample Date       | Field ID          | Sample Type       | Lab Report No. | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 24.53       | 17.86  |        |      |
| MW102   |                   | 5/02/2019         | 0927_MW102_190205 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 24.53       | 17.86  |        |      |
|   |                   | 16/03/2023        | 0927_QC201_230316 | Interlab_D        | 973583         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.01       | 28.51  | 21.82  |      |
|   |                   | 16/03/2023        | 0927_MW102_230316 | Normal            | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 24   | -      |      |
| MW103   |                   | 5/02/2019         | 0927_MW103_190205 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 20.08       | 14.27  |        |      |
|   |                   | 16/03/2023        | 0927_MW103_230316 | Normal            | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 26.1   | -      |      |
|   |                   | 16/03/2023        | 0927_QC101_230316 | Field_D           | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 24.1   | -      |      |
| MW105   |                   | 5/02/2019         | 0927_MW105_190205 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 78.24       | 64.2   |        |      |
|   |                   | 16/03/2023        | 0927_MW105_230316 | Normal            | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 290  | -      |      |
| MW107   |                   | 4/02/2019         | 0927_MW107_190204 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 7.25        | 4.39   |        |      |
|   |                   | 16/03/2023        | 0927_MW107_230316 | Normal            | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 7.92   | -      |      |
| MW109   |                   | 4/02/2019         | 0927_MW109_190204 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 0.34        | 0.3  |        |      |
|   |                   | 17/03/2023        | 0927_MW109_230317 | Normal            | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.97   | -      |      |
| MW110   |                   | 4/02/2019         | 0927_MW110_190204 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 104.3       | 77.6   |        |      |
|   |                   | 31/10/2019        | 0927_MW110_191031 | Normal            | 686044         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.01       | 133.77                                       | 110.3  |      |
|   |                   |                   | 0927_QC101_191031 | Field_D           | 686044         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | <0.01  | 122.39 | 98.5 |
|   |                   |                   | 0927_QC201_191031 | Interlab_D        | EM1918707      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | <0.05  | 165    | -    |
| 16/03/2023                                      | 0927_MW110_230316 | Normal            | EM2304822         | <0.02             | <0.02          | <0.05                             | <0.02                              | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.02  | <0.02   | <0.05   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | 118   | -           |  |        |      |
| MW115   |                   | 4/02/2019         | 0927_MW115_190204 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | <0.1        | 0.01   |        |      |
|   |                   | 16/03/2023        | 0927_MW115_230316 | Normal            | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.03   | -      |      |
| MW117   |                   | 5/02/2019         | 0927_MW117_190205 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 128.42      | 80.1   |        |      |
|   |                   | 16/03/2023        | 0927_MW117_230316 | Normal            | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 114  | -      |      |
| MW118   |                   | 5/02/2019         | 0927_MW118_190205 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 40.96       | 30.55  |        |      |
|   |                   | 0927_QC124_190205 | Field_D           | 639585            | <0.01          | <0.01                             | <0.01                              | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.01       | 46.49  | 35.53  |      |
|   |                   |                   | 0927_QC224_190205 | Interlab_D        | EM1901728      | <0.02                             | <0.02                              | <0.05                                | 0.02                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 43.8   | -      |      |
|   |                   |                   | 16/03/2023        | 0927_MW118_230316 | Normal         | EM2304822                         | <0.02                              | <0.02                                | <0.05                              | 0.03  | <0.05   | <0.05  | <0.05   | <0.05   | <0.02  | <0.02                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | <0.05  | 74.5   | -    |
| MW120   |                   | 5/02/2019         | 0927_MW120_190205 | Normal            | 639585         | <0.01                             | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | <0.01                                       | 5.14        | 3.49   |        |      |
|   |                   | 16/03/2023        | 0927_MW120_230316 | Normal            | EM2304822      | <0.02                             | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 17.8   | -      |      |

|   | Perfluorocarbons                  |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |
|---|-----------------------------------|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|
|   | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHS + PFS + PFOA)* |
|   | µg/L                              | µg/L                               | µg/L                                 | µg/L                               | µg/L  | ug/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L                                      |
| LOR   | 0.01                              | 0.01                               | 0.01                                 | 0.02                               | 0.05  | 0.05  | 0.05   | 0.05  | 0.02  | 0.02   | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01        | 0.01                                      |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |

| Location Code | Alternative Name | Sample Date       | Field ID            | Sample Type | Lab Report No. | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 0.73   | 0.51 |
|---------------|------------------|-------------------|---------------------|-------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|------|
| MW121         |                  | 24/01/2020        | 0927_MW121_200124   | Normal      | 698820         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 0.73   | 0.51 |
|               |                  | 17/03/2023        | 0927_MW121_230317   | Normal      | EM2304823      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 1.06   | -    |
| MW123         |                  | 24/01/2020        | 0927_MW123_200124   | Normal      | 698820         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 2.54   | 1.86 |
|               |                  | 17/03/2023        | 0927_MW123_230317   | Normal      | EM2304823      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 3.53   | -    |
| MW124         |                  | 18/07/2019        | 0927_MW124_190718   | Normal      |                | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -      | -    |
|               |                  | 17/03/2023        | 0927_MW124_230317   | Normal      | EM2304823      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 1.9    | -    |
| MW126         |                  | 17/07/2019        | 0927_MW126_190717   | Normal      |                | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -      | -    |
|               |                  | 17/03/2023        | 0927_MW126_230317   | Normal      | EM2304823      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 0.64   | -    |
| MW130         |                  | 19/07/2019        | 0927_MW130_190719   | Normal      |                | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -      | -    |
|               |                  | 17/03/2023        | 0927_MW130_230317   | Normal      | EM2304823      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 110    | -    |
| MW131         |                  | 19/07/2019        | 0927_MW131_190719   | Normal      |                | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -     | -      | -    |
|               |                  | 17/03/2023        | 0927_MW131_230317   | Normal      | EM2304823      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 166    | -    |
| MW137         |                  | 16/07/2019        | 0927_MW137_190716   | Normal      | 666870         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 0.89   | 0.32 |
| MW137         |                  | 22/03/2023        | 0927_MW137_230322   | Normal      | EM2307274      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 1.3    | -    |
| MW138         |                  | 24/01/2020        | 0927_MW138_200124   | Normal      | 698820         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 11.27  | 8.3  |
|               |                  | 0927_QC101_200124 | Field_D             | 698820      |                | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 9.78   | 6.88 |
|               |                  | 24/01/2020        | 0927_QC201_200124   | Interlab_D  | EM2001369      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 12.7   | -    |
|               |                  | 16/03/2023        | 0927_MW138_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 12.6   | -    |
| MW139         |                  | 24/01/2020        | 0927_MW139_200124   | Normal      | 698820         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 113.38 | 88.8 |
|               |                  | 16/03/2023        | 0927_MW139_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 31.8   | -    |
| MW140         |                  | 24/01/2020        | 0927_MW140_200124   | Normal      | 698820         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 1.615  | 1.21 |
|               |                  | 16/03/2023        | 0927_MW140_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 1.31   | -    |
| MW144         | GW130/1          | 16/08/2018        | 0927_GW130/1_180816 | Normal      | 613048         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 2.71   | 2.33 |
|               |                  | 16/03/2023        | 0927_MW144_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 1.62   | -    |
| MW146         | GW130/3          | 16/08/2018        | 0927_GW130/3_180816 | Normal      | 613048         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 2.79   | 2.43 |
|               |                  | 16/03/2023        | 0927_MW146_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | 1.73   | -    |

|   | Perfluorocarbons                  |                                     |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |      |      |
|---|-----------------------------------|-------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|------|------|------|
|   | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTriDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) |             |   |      |      |      |
|   | µg/L                              | µg/L                                | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  | µg/L | µg/L | µg/L |
| LOR   | 0.01                              | 0.01                                | 0.01                                 | 0.02                               | 0.05  | 0.05  | 0.05   | 0.05  | 0.02  | 0.02   | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01        | 0.01  | 0.01 | 0.01 | 0.01 |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                   |                                     |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |      |      |      |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                   |                                     |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |      |      |      |

| Location Code | Alternative Name | Sample Date | Field ID            | Sample Type | Lab Report No. | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | -     | <0.05 | -     | -     | <0.01 | <0.05 | 0.01  | -     | -       | -     |       |
|---------------|------------------|-------------|---------------------|-------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-------|-------|
| MW152         | GW155/6          | 19/05/2016  | 0927-GW 155/6       | Normal      | 501516         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | -     | <0.05 | -     | -     | <0.01 | <0.05 | 0.01  | -     | -       | -     |       |
|               |                  | 17/08/2018  | 0927_GW155/6_180817 | Normal      | 613048         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | 0.06  | <0.01   | 34.43 | 27.8  |
|               |                  | 17/03/2023  | 0927_MW152_230317   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | 0.02  | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05   | 30.4  | -     |
| MW155         | GW2/2            | 19/05/2016  | 0927-GW2/2          | Normal      | 501516         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | -     | <0.05 | -     | -     | <0.01 | 0.11  | 0.08  | -     | -       | -     |       |
|               |                  | 13/08/2018  | 0927_GW2/2_180813   | Normal      | 612558         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | 0.12  | 0.16  | <0.01   | 10    | 6.98  |
|               |                  |             | 0927_QC107_180813   | Field_D     | 612558         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | 0.23  | <0.01   | 10.33 | 6.64  |
|               |                  | 13/08/2018  | 0927_QC207_180813   | Interlab_D  | EM1813168      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | 0.12  | 0.15  | <0.05   | 10.1  | -     |
|               |                  | 16/03/2023  | 0927_MW155_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | 0.1   | 0.27  | <0.05   | 5.69  | -     |
| MW163         | GW34/1           | 19/05/2016  | 0927-GW34/1         | Normal      | 501516         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | -     | <0.05 | -     | -     | <0.01 | <0.05 | <0.01 | -     | -       | -     |       |
|               |                  | 3/08/2018   | 0927_GW34/1_180803  | Normal      | 610856         | <0.2  | <0.2  | <0.2  | 0.54  | <0.2  | <0.2  | <0.2  | <0.2  | <0.2  | <0.2  | <0.2  | <0.2  | <0.2  | 1842.54 | 1400  |       |
|               |                  | 16/03/2023  | 0927_MW163_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | 0.41  | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05   | 1030  | -     |
| MW182         | GW7/15           | 16/08/2018  | 0927_GW7/15_180816  | Normal      | 613048         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 8.78    | 5.91  |       |
|               |                  | 16/03/2023  | 0927_MW182_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05   | 4.93  | -     |
| MW185         | GW7/5            | 19/05/2016  | 0927-GW7/5          | Normal      | 501516         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | -     | <0.05 | -     | -     | <0.01 | <0.05 | <0.01 | -     | -       | -     |       |
|               |                  | 13/08/2018  | 0927_GW7/5_180813   | Normal      | 612558         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01   | 4.9   | 4.07  |
|               |                  | 16/03/2023  | 0927_MW185_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05   | 3.34  | -     |
| MW192         | GW81/3           | 19/05/2016  | 0927-GW 81/3        | Normal      | 501516         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | -     | <0.05 | -     | -     | <0.01 | <0.05 | <0.01 | -     | -       | -     |       |
|               |                  | 9/08/2018   | 0927_GW81/3_180809  | Normal      | 611851         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01   | 16.35 | 12.41 |
|               |                  | 16/03/2023  | 0927_MW192_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05   | 5.69  | -     |
| MW200         | GW90/2           | 14/08/2018  | 0927_GW90/2_180814  | Normal      | 612558         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 32.77   | 24.21 |       |
|               |                  | 16/03/2023  | 0927_QC200_230316   | Interlab_D  | 973583         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01   | 21.89 | 16.18 |
|               |                  | 16/03/2023  | 0927_MW200_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | 0.03  | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05   | 16.6  | -     |
|               |                  | 16/03/2023  | 0927_QC100_230316   | Field_D     | EM2304822      | <0.02 | <0.02 | <0.05 | 0.03  | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05   | 17.2  | -     |
| MW207         | GWAM/4           | 6/08/2018   | 0927_GWAM/4_180806  | Normal      | 611486         | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | 29.67   | 23.74 |       |
|               |                  | 16/03/2023  | 0927_MW207_230316   | Normal      | EM2304822      | <0.02 | <0.02 | <0.05 | 0.02  | <0.05 | <0.05 | <0.05 | <0.05 | <0.02 | <0.02 | <0.05 | <0.05 | <0.05 | <0.05   | 26.8  | -     |

|   | Perfluorocarbons                  |                                     |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |      | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |
|---|-----------------------------------|-------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|------|-------------|---|------|
|   | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTriDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) |      |             |   |      |
|   | µg/L                              | µg/L                                | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L | µg/L        | µg/L  | µg/L |
| LOR   | 0.01                              | 0.01                                | 0.01                                 | 0.02                               | 0.05  | 0.05  | 0.05   | 0.05  | 0.02  | 0.02   | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01 | 0.01        | 0.01  | 0.01 |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                   |                                     |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |      |             |   |      |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                   |                                     |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |      |             |   |      |

| Location Code | Alternative Name | Sample Date       | Field ID           | Sample Type | Lab Report No. | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTriDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |       |
|---------------|------------------|-------------------|--------------------|-------------|----------------|-----------------------------------|-------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|-------|
| MW208         | GWAM/5           | 19/05/2016        | 0927-GWAM/5        | Normal      | 501516         | <0.01                             | <0.01                               | <0.01                                | <0.05                              | <0.05   | -   | <0.05  | -   | -   | -  | <0.01                                     | <0.05                                 | <0.01                                 | -   | -           | -   |       |
|               |                  | 3/08/2018         | 0927_GWAM/5_180803 | Normal      | 610856         | <0.01                             | <0.01                               | <0.01                                | 0.26                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 98.99                                       | 88    |
|               |                  | 16/03/2023        | 0927_QC202_230316  | Interlab_D  | 973583         | <0.01                             | <0.01                               | <0.01                                | 0.59                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 348.99                                      | 295.3 |
|               |                  | 16/03/2023        | 0927_MW208_230316  | Normal      | EM2304822      | <0.02                             | <0.02                               | <0.05                                | 0.41                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | <0.05                                       | 228   |
| MW211         | GWB/2            | 16/03/2023        | 0927_QC102_230316  | Field_D     | EM2304822      | <0.02                             | <0.02                               | <0.05                                | 0.42                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 215   | -     |
|               |                  | 15/08/2018        | 0927_GWB/2_180815  | Normal      | 612558         | <0.01                             | <0.01                               | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 0.75  | 0.49  |
|               |                  | 16/03/2023        | 0927_QC203_230316  | Interlab_D  | 973583         | <0.01                             | <0.01                               | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 1.16  | 0.77  |
|               |                  | 16/03/2023        | 0927_MW211_230316  | Normal      | EM2304822      | <0.02                             | <0.02                               | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | <0.05                                       | 0.78  |
| MW217         | GWGA01           | 16/03/2023        | 0927_QC103_230316  | Field_D     | EM2304822      | <0.02                             | <0.02                               | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.77  | -     |
|               |                  | 16/08/2018        | 0927_GWGA01_180816 | Normal      | 613048         | <0.01                             | <0.01                               | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 0.33  | 0.24  |
| MW228         |                  | 17/03/2023        | 0927_MW217_230317  | Normal      | EM2304822      | <0.02                             | <0.02                               | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.12  | -     |
|               |                  | 10/03/2021        | 0927_MW228_210310  | Normal      | 779659         | <0.01                             | <0.01                               | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 24.4  | 18.78 |
| MW229         |                  | 17/03/2023        | 0927_MW228_230317  | Normal      | EM2304823      | <0.02                             | <0.02                               | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 5.63  | -     |
|               |                  | 17/04/2023        | 0927_MW228_230317  | Normal      | EM2307379      | <0.02                             | <0.02                               | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 5.63  | -     |
|               |                  | 10/03/2021        | 0927_MW229_210310  | Normal      | 779659         | <0.01                             | <0.01                               | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 2.87  | 2.37  |
|               |                  | 0927_QC100_210310 | Field_D            | 779659      | <0.01          | <0.01                             | <0.01                               | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 2.78  | 2.29  |
| MW229         |                  | 10/03/2021        | 0927_QC200_210310  | Interlab_D  | EM2104214      | <0.02                             | <0.02                               | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.99  | -     |
|               |                  | 17/03/2023        | 0927_MW229_230317  | Normal      | EM2304823      | <0.02                             | <0.02                               | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.02  | <0.02                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 2.3   | -     |

Notes

- Denotes first-time detection above LOR in latest monitoring round
- Denotes new exceedance of human health drinking water screening criteria in latest monitoring round

Perfluorocarbons

| Perfluorooctane sulfonic acid (PFOS)            | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecane sulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |
|---|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|--------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|
| µg/L  | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                 | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              | µg/L                               | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  |
| LOR   | 0.001                     | 0.001                 | 0.001                                |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |
| PFAS NEMP 2.0 Table 1 Health Recreational Water | 10                        | 2                     |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                      | 220                   |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |

| Location_Code | Alternative_Name | Sampled_Date_Time | Field_ID          | Sample_Type | Lab_Report_Number | 0.03 | <0.01 | 0.05 | <0.01 | <0.01 | 0.02 | <0.01 | <0.01 | <0.01 | <0.05 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.01 | <0.05 | <0.01 | <0.01 | <0.1 | 0.05 |  |  |
|---------------|------------------|-------------------|-------------------|-------------|-------------------|------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|--|--|
| SW005         | SW05             | 20/08/2018        | 0927_SW05_180820  | Normal      | 613490            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW005         | SW05             | 3/06/2019         | 0927_SW05_190603  | Normal      | 662504            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW006         | SW06             | 20/08/2018        | 0927_SW06_180820  | Normal      | 613490            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW006         | SW06             | 20/03/2023        | 0927_QC204_230320 | Interlab D  | 975318            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW006         | SW06             | 20/03/2023        | 0927_SW006_230320 | Normal      | EM2305194         |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW006         | SW06             | 20/03/2023        | 0927_QC104_230320 | Field D     | EM2305194         |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW008         | SW08             | 20/08/2018        | 0927_SW08_180820  | Normal      | 613490            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW012         | SW12             | 21/08/2018        | 0927_SW12_180821  | Normal      | 613490            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW012         | SW12             | 3/06/2019         | 0927_SW12_190603  | Normal      | 662504            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW012         | SW12             | 9/07/2020         | 0927_SW12_200709  | Normal      | 731055            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW012         | SW12             | 5/08/2020         | 0927_SW12_200805  | Normal      | 736375            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW012         | SW12             | 4/11/2020         | 0927_SW12_201104  | Normal      | 755594            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW012         | SW12             | 21/03/2023        | 0927_SW012_230321 | Normal      | EM2305195         |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW013         | SW13             | 21/08/2018        | 0927_SW13_180821  | Normal      | 613490            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW013         | SW13             | 21/03/2023        | 0927_SW013_230321 | Normal      | EM2305195         |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW015         | SW15             | 21/08/2018        | 0927_SW15_180821  | Normal      | 613490            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW015         | SW15             | 3/06/2019         | 0927_SW15_190603  | Normal      | 662504            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW015         | SW15             | 3/06/2019         | SW15_190603 F     | Normal      | 662504            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW015         | SW15             | 9/07/2020         | 0927_QC102_200709 | Field D     | 731055            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW015         | SW15             | 9/07/2020         | 0927_SW15_200709  | Normal      | 731055            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW015         | SW15             | 9/07/2020         | 0927_QC202_200709 | Interlab D  | EM2012086         |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW015         | SW15             | 20/03/2023        | 0927_SW015_230320 | Normal      | EM2305195         |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW020         | SW20             | 17/01/2019        | 0927_SW20_190117  | Normal      | 637379            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW020         | SW20             | 3/06/2019         | SW20_190603       | Normal      | 662504            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW020         | SW20             | 9/07/2020         | 0927_QC103_200709 | Field D     | 731055            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW020         | SW20             | 9/07/2020         | 0927_SW20_200709  | Normal      | 731055            |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |
| SW020         | SW20             | 9/07/2020         | 0927_QC203_200709 | Interlab D  | EM2012086         |      |       |      |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |      |  |  |

|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |      |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|--------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecane sulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) | Perfluorotridecanoic acid (PFTTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |
|   | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                 | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              | µg/L                               | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  | µg/L |
| LOR   | 0.001                                | 0.001                     | 0.001                 | 0.001                                | 0.001                                  | 0.001                                 | 0.001                                  | 0.001                                | 0.001                         | 0.001                           | 0.001                          | 0.001                           | 0.001                         | 0.001                         | 0.001                             | 0.001                             | 0.001                              | 0.001                                | 0.005                              | 0.005   | 0.005   | 0.005  | 0.005   | 0.005   | 0.005  | 0.001                                     | 0.005                                 | 0.001                                 | 0.001                                       | 0.005       | 0.001                                       |      |
| PFAS NEMP 2.0 Table 1 Health Recreational Water | 10                                   | 2                         |                       |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |      |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |      |

| Location_Code | Alternative_Name | Sampled_Date_Time | Field_ID          | Sample_Type | Lab_Report_Number | 0.11  | 0.007  | 0.191 | 0.012  | 0.014  | 0.081 | 0.002  | <0.001  | 0.024 | 0.009  | 0.021  | 0.004  | <0.001 | 0.002  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | 0.014  | 0.002   | <0.001 | 0.305  | 0.198  |       |       |      |   |
|---------------|------------------|-------------------|-------------------|-------------|-------------------|-------|--------|-------|--------|--------|-------|--------|---------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|--------|--------|---------|--------|--------|--------|-------|-------|------|---|
| SW020         | SW20             | 5/08/2020         | 0927_SW20_200805  | Normal      | 736375            | 0.11  | 0.007  | 0.191 | 0.012  | 0.014  | 0.081 | 0.002  | <0.001  | 0.024 | 0.009  | 0.021  | 0.004  | <0.001 | 0.002  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | 0.014  | 0.002   | <0.001 | 0.305  | 0.198  |       |       |      |   |
| SW020         | SW20             | 4/11/2020         | 0927_QC101_201104 | Field_D     | 755594            | 0.11  | 0.012  | 0.25  | 0.017  | 0.044  | 0.14  | 0.005  | 0.003   | 0.013 | 0.015  | 0.037  | 0.006  | <0.001 | 0.003  | 0.003   | <0.001  | 0.005   | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | <0.001 | 0.005   | <0.001 | 0.433  | 0.262  |       |       |      |   |
| SW020         | SW20             | 4/11/2020         | 0927_SW20_201104  | Normal      | 755594            | 0.12  | 0.012  | 0.26  | 0.019  | 0.037  | 0.14  | 0.005  | <0.001  | 0.012 | 0.01   | 0.037  | 0.005  | <0.001 | 0.002  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | <0.001 | <0.001  | 0.005  | <0.001 | 0.409  | 0.272 |       |      |   |
| SW020         | SW20             | 4/11/2020         | 0927_QC201_201104 | Interlab_D  | EB2030068         | 0.112 | 0.0128 | 0.252 | 0.0229 | 0.0195 | 0.14  | 0.0065 | <0.0005 | 0.008 | 0.0146 | 0.0399 | 0.0058 | 0.0013 | 0.0029 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.001 | <0.001 | <0.0005 | <0.001 | <0.001 | 0.386  | -     |       |      |   |
| SW020         | SW20             | 21/03/2023        | 0927_QC205_230321 | Interlab_D  | 975318            | 0.27  | 0.02   | 0.47  | 0.03   | 0.04   | 0.26  | 0.02   | <0.01   | <0.05 | 0.03   | 0.06   | 0.01   | <0.01  | <0.01  | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | 0.69   | 0.49  |       |      |   |
| SW020         | SW20             | 21/03/2023        | 0927_SW020_230321 | Normal      | EM2305195         | 0.1   | 0.01   | 0.24  | 0.02   | <0.02  | 0.14  | <0.02  | <0.02   | <0.1  | <0.02  | 0.03   | <0.02  | <0.02  | <0.02  | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02  | <0.02  | <0.02   | <0.02  | <0.02  | <0.02  | <0.02 | 0.3   | -    |   |
| SW020         | SW20             | 21/03/2023        | 0927_QC105_230321 | Field_D     | EM2305194         | 0.12  | 0.01   | 0.26  | 0.02   | 0.02   | 0.14  | <0.02  | <0.02   | <0.1  | <0.02  | 0.04   | <0.02  | <0.02  | <0.02  | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02  | <0.02  | <0.02   | <0.02  | <0.02  | <0.02  | <0.02 | <0.02 | 0.35 | - |
| SW024         | SW24             | 17/01/2019        | 0927_SW24_190117  | Normal      | 637379            | 0.39  | 0.03   | 0.62  | 0.03   | 0.03   | 0.23  | 0.02   | <0.01   | <0.05 | 0.02   | 0.08   | 0.02   | <0.01  | <0.01  | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | <0.01  | 0.85  | 0.65  |      |   |
| SW024         | SW24             | 21/03/2023        | 0927_SW024_230321 | Normal      | EM2305195         | 0.1   | 0.01   | 0.22  | <0.02  | <0.02  | 0.12  | <0.02  | <0.02   | <0.1  | <0.02  | 0.03   | <0.02  | <0.02  | <0.02  | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02  | <0.02  | <0.02   | <0.02  | <0.02  | <0.02  | <0.02 | <0.02 | 0.26 | - |
| SW027         | SW27             | 3/06/2019         | SW27_190603       | Normal      | 662504            | 0.24  | 0.01   | 0.32  | 0.01   | <0.01  | 0.08  | <0.01  | <0.01   | <0.05 | 0.02   | 0.04   | <0.01  | <0.01  | <0.01  | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | <0.01  | 0.4   | 0.33  |      |   |
| SW027         | SW27             | 20/03/2023        | 0927_SW027_230320 | Normal      | EM2305195         | 0.47  | 0.01   | 0.57  | <0.02  | <0.02  | 0.1   | <0.02  | <0.02   | <0.1  | <0.02  | 0.02   | <0.02  | <0.02  | <0.02  | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02  | <0.02  | <0.02   | <0.02  | <0.02  | <0.02  | <0.02 | <0.02 | 0.6  | - |
| SW030         | SW30             | 17/01/2019        | 0927_SW30_190117  | Normal      | 637379            | 0.04  | 0.06   | 0.04  | <0.01  | <0.01  | <0.01 | <0.01  | <0.01   | <0.05 | 0.02   | 0.03   | 0.02   | <0.01  | 0.02   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | <0.01  | 0.19  | 0.1   |      |   |
| SW030         | SW30             | 20/03/2023        | 0927_SW030_230320 | Normal      | EM2305195         | 0.04  | 0.02   | 0.09  | <0.02  | <0.02  | 0.05  | <0.02  | <0.02   | <0.1  | <0.02  | 0.03   | <0.02  | <0.02  | <0.02  | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02  | <0.02  | <0.02   | <0.02  | <0.02  | <0.02  | <0.02 | <0.02 | 0.14 | - |
| SW034         | SW34             | 3/06/2019         | 0927_SW34_190603  | Normal      | 662504            | 1.1   | 0.01   | 1.31  | 0.02   | 0.02   | 0.21  | 0.02   | <0.01   | <0.05 | 0.01   | 0.09   | 0.01   | <0.01  | <0.01  | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | <0.01  | 1.49  | 1.32  |      |   |
| SW034         | SW34             | 20/03/2023        | 0927_SW034_230320 | Normal      | EM2305194         | 34.6  | 0.96   | 55.6  | 2.7    | 3.84   | 21    | 0.98   | 0.08    | 0.4   | 1.25   | 7.39   | 1.23   | 0.02   | <0.02  | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02  | <0.02  | <0.02   | <0.02  | <0.02  | <0.02  | <0.02 | 74.5  | -    |   |
| SW041         | SW41             | 3/06/2019         | 0927_SW41_190603  | Normal      | 662504            | 0.16  | <0.01  | 0.18  | <0.01  | <0.01  | 0.02  | <0.01  | <0.01   | <0.05 | <0.01  | <0.01  | <0.01  | <0.01  | <0.01  | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | <0.01  | 0.18  | 0.18  |      |   |
| SW041         | SW41             | 9/07/2020         | 0927_SW41_200709  | Normal      | 731055            | 0.009 | 0.004  | 0.016 | 0.002  | 0.001  | 0.007 | <0.001 | <0.001  | 0.006 | 0.005  | 0.006  | 0.002  | <0.001 | 0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | <0.001 | <0.001  | <0.001 | <0.001 | <0.001 | 0.043 | 0.02  |      |   |
| SW041         | SW41             | 5/08/2020         | 0927_SW41_200805  | Normal      | 736375            | 0.008 | 0.005  | 0.014 | 0.002  | <0.001 | 0.006 | <0.001 | <0.001  | 0.007 | 0.005  | 0.007  | 0.002  | <0.001 | 0.002  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | <0.001 | <0.001  | <0.001 | <0.001 | <0.001 | 0.044 | 0.019 |      |   |
| SW041         | SW41             | 21/03/2023        | 0927_SW041_230321 | Normal      | EM2305195         | <0.01 | <0.01  | 0.01  | <0.02  | <0.02  | 0.01  | <0.02  | <0.02   | <0.1  | <0.02  | <0.02  | <0.02  | <0.02  | <0.02  | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02  | <0.02  | <0.02   | <0.02  | <0.02  | <0.02  | <0.02 | <0.02 | 0.01 | - |
| SW042         | SW42             | 3/06/2019         | 0927_SW42_190603  | Normal      | 662504            | 0.06  | 0.01   | 0.09  | <0.01  | <0.01  | 0.03  | <0.01  | <0.01   | <0.05 | <0.01  | 0.01   | <0.01  | <0.01  | <0.01  | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | <0.01  | 0.11  | 0.1   |      |   |
| SW042         | SW42             | 9/07/2020         | 0927_SW42_200709  | Normal      | 731055            | 0.33  | 0.017  | 0.394 | 0.008  | 0.007  | 0.064 | 0.003  | <0.001  | 0.011 | 0.01   | 0.026  | 0.004  | 0.002  | 0.009  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | <0.001 | <0.001  | <0.001 | <0.001 | 0.494  | 0.411 |       |      |   |
| SW042         | SW42             | 5/08/2020         | 0927_SW42_200805  | Normal      | 736375            | 0.17  | 0.012  | 0.222 | 0.006  | 0.006  | 0.052 | 0.001  | <0.001  | 0.011 | 0.009  | 0.02   | 0.003  | 0.002  | 0.008  | <0.001  | 0.002   | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | <0.001 | <0.001  | <0.001 | <0.001 | 0.304  | 0.234 |       |      |   |
| SW043         | SW43             | 3/06/2019         | 0927_QC127_190603 | Field_D     | 662504            | 0.11  | <0.01  | 0.15  | <0.01  | <0.01  | 0.04  | <0.01  | <0.01   | <0.05 | <0.01  | <0.01  | <0.01  | <0.01  | <0.01  | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | <0.01  | 0.15  | 0.15  |      |   |
| SW043         | SW43             | 3/06/2019         | 0927_SW43_190603  | Normal      | 662504            | 0.11  | <0.01  | 0.15  | <0.01  | <0.01  | 0.04  | <0.01  | <0.01   | <0.05 | <0.01  | <0.01  | <0.01  | <0.01  | <0.01  | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01   | <0.01  | <0.01  | <0.01   | <0.01  | <0.01  | <0.01  | 0.15  | 0.15  |      |   |
| SW045         | SW45             | 8/07/2020         | 0927_SW45_200709  | Normal      | 731055            | 0.006 | 0.008  | 0.008 | <0.001 | <0.001 | 0.002 | <0.001 | <0.001  | 0.008 | 0.003  | 0.007  | 0.002  | 0.001  | 0.005  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | <0.001 | <0.001  | <0.001 | <0.001 | 0.042  | 0.016 |       |      |   |
| SW045         | SW45             | 5/08/2020         | 0927_SW45_200805  | Normal      | 736375            | 0.009 | 0.009  | 0.01  | <0.001 | <0.001 | 0.001 | <0.001 | <0.001  | 0.01  | 0.003  | 0.007  | 0.002  | 0.001  | 0.008  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001  | <0.001 | <0.001 | <0.001  | <0.001 | <0.001 | <0.001 | 0.05  | 0.019 |      |   |
| SW045         | SW45             | 20/03/2023        | 0927_SW045_230320 | Normal      | EM2305195         | <0.01 | 0.01   | 0.01  | <0.02  | <0.02  | 0.01  | <0.02  | <0.02   | <0.1  | <0.02  | <0.02  | <0.02  | <0.02  | <0.02  | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02   | <0.02  | <0.02  | <0.02   | <0.02  | <0.02  | <0.02  | <0.02 | <0.02 | 0.02 | - |
| SW049         | SW49             | 9/07              |                   |             |                   |       |        |       |        |        |       |        |         |       |        |        |        |        |        |         |         |         |         |         |         |         |        |        |         |        |        |        |       |       |      |   |

| Lab Report Number   |      | EM2304822         |                   | EM2304822         |                   | 973583            |                    | EM2304822         |                   | EM2304822         |                   |
|---|------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|
| Field ID  |      | 0927_MW200_230316 | 0927_QC100_230316 | 0927_MW200_230316 | 0927_QC200_230316 | 0927_MW200_230316 | 0927_QC200_230316  | 0927_MW208_230316 | 0927_QC102_230316 | 0927_MW208_230316 | 0927_QC102_230316 |
| Date  |      | 16 Mar 2023       | 16 Mar 2023       | 16 Mar 2023       | 16 Mar 2023       | 16 Mar 2023       | 16 Mar 2023        | 16 Mar 2023       | 16 Mar 2023       | 16 Mar 2023       | 16 Mar 2023       |
|   | Unit | LOR               |                   |                   |                   |                   |                    |                   |                   |                   |                   |
| NA  |      |                   |                   |                   |                   |                   |                    |                   |                   |                   |                   |
| Perfluorononane sulfonate (PFNS)                              | µg/L | 0.01              | -                 | -                 | -                 | -                 | 0.09 <sup>#1</sup> | -                 | -                 | -                 | -                 |
| Sum of WA DWER PFAS (n=10)*                                   | µg/L | 0.01              | 15.6              | 16.1              | 3                 | 15.6              | 20.21              | 26                | 213               | 202               | 5                 |
| Perfluorocarbons  |      |                   |                   |                   |                   |                   |                    |                   |                   |                   |                   |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.01              | 7.94              | 8.44              | 6                 | 7.94              | 11 <sup>#1</sup>   | 32                | 128               | 120               | 6                 |
| Perfluorooctanoate (PFOA)                                     | µg/L | 0.01              | 0.23              | 0.23              | 0                 | 0.23              | 0.28 <sup>#1</sup> | 20                | 3.43              | 3.45              | 1                 |
| Sum of PFHxS and PFOS   | µg/L | 0.01              | 12.1              | 12.6              | 4                 | 12.1              | 15.9               | 27                | 185               | 176               | 5                 |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 0.01              | 0.83              | 0.86              | 4                 | 0.83              | 0.98               | 17                | 7.75              | 6.90              | 12                |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | 0.01              | 0.74              | 0.75              | 1                 | 0.74              | 0.77 <sup>#1</sup> | 4                 | 9.62              | 8.76              | 9                 |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.01              | 4.13              | 4.19              | 1                 | 4.13              | 4.9 <sup>#1</sup>  | 17                | 57.0              | 55.7              | 2                 |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | 0.01              | 0.28              | 0.29              | 4                 | 0.28              | 0.26 <sup>#1</sup> | 7                 | 4.46              | 4.01              | 11                |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | 0.01              | <0.02             | <0.02             | 0                 | <0.02             | <0.01              | 0                 | 0.06              | 0.06              | 0                 |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | 0.05              | 0.2               | 0.1               | 67                | 0.2               | 0.33               | 49                | 1.2               | 1.2               | 0                 |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | 0.01              | 0.32              | 0.32              | 0                 | 0.32              | 0.41               | 25                | 2.56              | 2.58              | 1                 |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 0.01              | 1.69              | 1.71              | 1                 | 1.69              | 2.0                | 17                | 11.6              | 10.1              | 14                |
| Perfluoropropanesulfonic acid (PFPrS)                         | µg/L |                   | -                 | -                 | -                 | -                 | 0.56               | -                 | -                 | -                 | -                 |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | 0.01              | 0.23              | 0.23              | 0                 | 0.23              | 0.31 <sup>#1</sup> | 30                | 1.85              | 1.78              | 4                 |
| Perfluorononanoic acid (PFNA)                                 | µg/L | 0.01              | <0.02             | <0.02             | 0                 | <0.02             | <0.01              | 0                 | <0.02             | <0.02             | 0                 |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | 0.01              | <0.02             | <0.02             | 0                 | <0.02             | <0.01              | 0                 | <0.02             | <0.02             | 0                 |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | 0.01              | <0.02             | <0.02             | 0                 | <0.02             | <0.01              | 0                 | <0.02             | <0.02             | 0                 |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | 0.01              | <0.02             | <0.02             | 0                 | <0.02             | <0.01              | 0                 | <0.02             | <0.02             | 0                 |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | 0.01              | <0.02             | <0.02             | 0                 | <0.02             | <0.01              | 0                 | <0.02             | <0.02             | 0                 |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | 0.01              | <0.05             | <0.05             | 0                 | <0.05             | <0.01              | 0                 | <0.05             | <0.05             | 0                 |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | 0.02              | 0.03              | 0.03              | 0                 | 0.03              | <0.05              | 0                 | 0.41              | 0.42              | 2                 |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | 0.05              | <0.05             | <0.05             | 0                 | <0.05             | <0.05              | 0                 | <0.05             | <0.05             | 0                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | µg/L | 0.05              | <0.05             | <0.05             | 0                 | <0.05             | <0.05              | 0                 | <0.05             | <0.05             | 0                 |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | 0.05              | <0.05             | <0.05             | 0                 | <0.05             | <0.05              | 0                 | <0.05             | <0.05             | 0                 |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | 0.05              | <0.05             | <0.05             | 0                 | <0.05             | <0.05              | 0                 | <0.05             | <0.05             | 0                 |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | 0.02              | <0.02             | <0.02             | 0                 | <0.02             | <0.05              | 0                 | <0.02             | <0.02             | 0                 |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | 0.02              | <0.02             | <0.02             | 0                 | <0.02             | <0.05              | 0                 | <0.02             | <0.02             | 0                 |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | 0.01              | <0.05             | <0.05             | 0                 | <0.05             | <0.01              | 0                 | <0.05             | <0.05             | 0                 |
| 6:2 Fluorotelomer Sulfonate (6:2 FIS)                         | µg/L | 0.05              | <0.05             | <0.05             | 0                 | <0.05             | <0.05              | 0                 | <0.05             | <0.05             | 0                 |
| 8:2 Fluorotelomer sulfonate (8:2 FIS)                         | µg/L | 0.01              | <0.05             | <0.05             | 0                 | <0.05             | <0.01              | 0                 | <0.05             | <0.05             | 0                 |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | 0.01              | <0.05             | <0.05             | 0                 | <0.05             | <0.01              | 0                 | <0.05             | <0.05             | 0                 |
| Sum of PFAS   | µg/L | 0.01              | 16.6              | 17.2              | 4                 | 16.6              | 21.89              | 27                | 228               | 215               | 6                 |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | µg/L |                   | -                 | -                 | -                 | -                 | 11.28              | -                 | -                 | -                 | -                 |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | µg/L | 0.01              | -                 | -                 | -                 | -                 | 0.01618            | -                 | -                 | -                 | -                 |

Comments

#1 Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

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

\*\*Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 30 (1 - 10 x EQL); 30 (10 - 30 x EQL); 30 (> 30 x EQL))

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



|   | Unit | EM2304822                        |                                  | RPD | EM2304822                        |                                  | RPD | EM2304822                        |                                  | RPD | EM2304822                        |   |
|---|------|----------------------------------|----------------------------------|-----|----------------------------------|----------------------------------|-----|----------------------------------|----------------------------------|-----|----------------------------------|---|
|   |      | 973583                           |                                  |     | 973583                           |                                  |     | 973583                           |                                  |     |                                  |   |
|   |      | 0927_MW208_230316<br>16 Mar 2023 | 0927_OC202_230316<br>16 Mar 2023 |     | 0927_MW102_230316<br>16 Mar 2023 | 0927_OC101_230316<br>16 Mar 2023 |     | 0927_MW102_230316<br>16 Mar 2023 | 0927_OC201_230316<br>16 Mar 2023 |     | 0927_MW211_230316<br>16 Mar 2023 |   |
| NA  |      |                                  |                                  |     |                                  |                                  |     |                                  |                                  |     |                                  |   |
| Perfluorononane sulfonate (PFNS)                              | µg/L | -                                | <1                               | -   | -                                | -                                | -   | -                                | 0.02 <sup>#1</sup>               | -   | -                                | - |
| Sum of WA DWER PFAS (n=10)*                                   | µg/L | 213                              | 326.7                            | 42  | 21.9                             | 22.2                             | 1   | 21.9                             | 26.12                            | 18  | 0.71                             |   |
| Perfluorocarbons  |      |                                  |                                  |     |                                  |                                  |     |                                  |                                  |     |                                  |   |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 128                              | 210 <sup>#1</sup>                | 49  | 9.32                             | 9.99                             | 7   | 9.32                             | 12 <sup>#1</sup>                 | 25  | 0.11                             |   |
| Perfluorooctanoate (PFOA)                                     | µg/L | 3.43                             | 5.3 <sup>#1</sup>                | 43  | 0.37                             | 0.36                             | 3   | 0.37                             | 0.42 <sup>#1</sup>               | 13  | 0.02                             |   |
| Sum of PFHxS and PFOS   | µg/L | 185                              | 290                              | 44  | 17.4                             | 18.1                             | 4   | 17.4                             | 21.4                             | 21  | 0.55                             |   |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 7.75                             | 10                               | 25  | 1.18                             | 1.14                             | 3   | 1.18                             | 1.2                              | 2   | 0.07                             |   |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | 9.62                             | 11 <sup>#1</sup>                 | 13  | 1.37                             | 1.23                             | 11  | 1.37                             | 1.2 <sup>#1</sup>                | 13  | 0.07                             |   |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 57.0                             | 80 <sup>#1</sup>                 | 34  | 8.10                             | 8.08                             | 0   | 8.10                             | 9.4 <sup>#1</sup>                | 15  | 0.44                             |   |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | 4.46                             | 5.0 <sup>#1</sup>                | 11  | 0.74                             | 0.63                             | 16  | 0.74                             | 0.53 <sup>#1</sup>               | 33  | <0.02                            |   |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | 0.06                             | <1                               | 0   | <0.02                            | <0.02                            | 0   | <0.02                            | <0.01                            | 0   | <0.02                            |   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | 1.2                              | 2.1                              | 55  | 0.2                              | 0.2                              | 0   | 0.2                              | 0.37                             | 60  | <0.1                             |   |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | 2.56                             | 3.0                              | 16  | 0.44                             | 0.40                             | 10  | 0.44                             | 0.43                             | 2   | <0.02                            |   |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 11.6                             | 14                               | 19  | 2.05                             | 1.86                             | 10  | 2.05                             | 2.0                              | 2   | 0.07                             |   |
| Perfluoropropanesulfonic acid (PFPrS)                         | µg/L | -                                | 5.7                              | -   | -                                | -                                | -   | -                                | 0.64                             | -   | -                                |   |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | 1.85                             | 2.3 <sup>#1</sup>                | 22  | 0.25                             | 0.22                             | 13  | 0.25                             | 0.30 <sup>#1</sup>               | 18  | <0.02                            |   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02                            | <1                               | 0   | <0.02                            | <0.02                            | 0   | <0.02                            | <0.01                            | 0   | <0.02                            |   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02                            | <1                               | 0   | <0.02                            | <0.02                            | 0   | <0.02                            | <0.01                            | 0   | <0.02                            |   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02                            | <0.01                            | 0   | <0.02                            | <0.02                            | 0   | <0.02                            | <0.01                            | 0   | <0.02                            |   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02                            | <0.01                            | 0   | <0.02                            | <0.02                            | 0   | <0.02                            | <0.01                            | 0   | <0.02                            |   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02                            | <0.01                            | 0   | <0.02                            | <0.02                            | 0   | <0.02                            | <0.01                            | 0   | <0.02                            |   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05                            | <0.01                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.01                            | 0   | <0.05                            |   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | 0.41                             | 0.59 <sup>#1</sup>               | 36  | <0.02                            | <0.02                            | 0   | <0.02                            | <0.05                            | 0   | <0.02                            |   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            |   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | µg/L | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            |   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            |   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            |   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02                            | <0.05                            | 0   | <0.02                            | <0.02                            | 0   | <0.02                            | <0.05                            | 0   | <0.02                            |   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02                            | <0.05                            | 0   | <0.02                            | <0.02                            | 0   | <0.02                            | <0.05                            | 0   | <0.02                            |   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05                            | <0.01                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.01                            | 0   | <0.05                            |   |
| 6:2 Fluorotelomer Sulfonate (6:2 FIS)                         | µg/L | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            |   |
| 8:2 Fluorotelomer sulfonate (8:2 FIS)                         | µg/L | <0.05                            | <0.01                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.01                            | 0   | <0.05                            |   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05                            | <0.01                            | 0   | <0.05                            | <0.05                            | 0   | <0.05                            | <0.01                            | 0   | <0.05                            |   |
| Sum of PFAS   | µg/L | 228                              | 348.99                           | 42  | 24.0                             | 24.1                             | 0   | 24.0                             | 28.51                            | 17  | 0.78                             |   |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | µg/L | -                                | 215.3                            | -   | -                                | -                                | -   | -                                | 12.42                            | -   | -                                |   |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | µg/L | -                                | 0.2953                           | -   | -                                | -                                | -   | -                                | 0.02182                          | -   | -                                |   |

Comments

#1 Quantification of linear and branched isomers has been conducted

\*RPDs have only been considered where a concentration is above the detection limit

\*\*Elevated RPDs are highlighted as per QAQC Profile section 4.1

\*\*\*Interlab Duplicates are matched on a per compound basis

|   |      | 4822              |    | EM2304822         |                    | 973583            |       | EM2305194         |    | EM2305194         |                    | 975318            |   |
|---|------|-------------------|----|-------------------|--------------------|-------------------|-------|-------------------|----|-------------------|--------------------|-------------------|---|
|   |      | 0927_OC103_230316 |    | 0927_MW211_230316 |                    | 0927_OC203_230316 |       | 0927_SW006_230320 |    | 0927_OC104_230320 |                    | 0927_SW006_230320 |   |
|   |      | 16 Mar 2023       |    | 16 Mar 2023       |                    | 16 Mar 2023       |       | 20 Mar 2023       |    | 20 Mar 2023       |                    | 20 Mar 2023       |   |
|   |      | RPD               |    | RPD               |                    | RPD               |       | RPD               |    | RPD               |                    | RPD               |   |
|   | Unit |                   |    |                   |                    |                   |       |                   |    |                   |                    |                   |   |
| NA  |      |                   |    |                   |                    |                   |       |                   |    |                   |                    |                   |   |
| Perfluorononane sulfonate (PFNS)                              | µg/L | -                 | -  | -                 | <0.01              | -                 | -     | -                 | -  | -                 | -                  | <0.01             | - |
| Sum of WA DWER PFAS (n=10)*                                   | µg/L | 0.71              | 0  | 0.71              | 1                  | 34                | <0.01 | 0.02              | 67 | <0.01             | <0.05              | 0                 | 0 |
| Perfluorocarbons  |      |                   |    |                   |                    |                   |       |                   |    |                   |                    |                   |   |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.09              | 20 | 0.11              | 0.14 <sup>#1</sup> | 24                | <0.01 | 0.01              | 0  | <0.01             | 0.01 <sup>#1</sup> | 0                 | 0 |
| Perfluorooctanoate (PFOA)                                     | µg/L | 0.02              | 0  | 0.02              | 0.02 <sup>#1</sup> | 0                 | <0.01 | <0.01             | 0  | <0.01             | <0.01              | 0                 | 0 |
| Sum of PFHxS and PFOS   | µg/L | 0.55              | 0  | 0.55              | 0.75               | 31                | <0.01 | 0.02              | 67 | <0.01             | 0.01               | 0                 | 0 |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 0.07              | 0  | 0.07              | 0.09               | 25                | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | 0.06              | 15 | 0.07              | 0.10 <sup>#1</sup> | 35                | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.46              | 4  | 0.44              | 0.61 <sup>#1</sup> | 32                | <0.01 | 0.01              | 0  | <0.01             | <0.01              | 0                 | 0 |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | <0.02             | 0  | <0.02             | 0.02 <sup>#1</sup> | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | 0  | <0.02             | <0.01              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | <0.1              | 0  | <0.1              | <0.05              | 0                 | <0.1  | <0.1              | 0  | <0.1              | <0.05              | 0                 | 0 |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | <0.02             | 0  | <0.02             | 0.03               | 40                | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 0.07              | 0  | 0.07              | 0.10               | 35                | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluoropropanesulfonic acid (PFPrS)                         | µg/L | -                 | -  | -                 | 0.04               | -                 | -     | -                 | -  | -                 | <0.01              | -                 | - |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | <0.02             | 0  | <0.02             | 0.01 <sup>#1</sup> | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | 0  | <0.02             | <0.01              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | 0  | <0.02             | <0.01              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | 0  | <0.02             | <0.01              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | 0  | <0.02             | <0.01              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | 0  | <0.02             | <0.01              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.01              | 0                 | 0 |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | 0  | <0.05             | <0.01              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.01              | 0                 | 0 |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | 0  | <0.02             | <0.05              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.05              | 0                 | 0 |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | 0  | <0.05             | <0.05              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.05              | 0                 | 0 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | µg/L | <0.05             | 0  | <0.05             | <0.05              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.05              | 0                 | 0 |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | 0  | <0.05             | <0.05              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.05              | 0                 | 0 |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | 0  | <0.05             | <0.05              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.05              | 0                 | 0 |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | 0  | <0.02             | <0.05              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.05              | 0                 | 0 |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | 0  | <0.02             | <0.05              | 0                 | <0.02 | <0.02             | 0  | <0.02             | <0.05              | 0                 | 0 |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | 0  | <0.05             | <0.01              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.01              | 0                 | 0 |
| 6:2 Fluorotelomer Sulfonate (6:2 FIS)                         | µg/L | <0.05             | 0  | <0.05             | <0.05              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.05              | 0                 | 0 |
| 8:2 Fluorotelomer sulfonate (8:2 FIS)                         | µg/L | <0.05             | 0  | <0.05             | <0.01              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.01              | 0                 | 0 |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | 0  | <0.05             | <0.01              | 0                 | <0.05 | <0.05             | 0  | <0.05             | <0.01              | 0                 | 0 |
| Sum of PFAS   | µg/L | 0.77              | 1  | 0.78              | 1.16               | 39                | <0.01 | 0.02              | 67 | <0.01             | <0.1               | 0                 | 0 |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | µg/L | -                 | -  | -                 | 0.16               | -                 | -     | -                 | -  | -                 | 0.01               | -                 | - |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | µg/L | -                 | -  | -                 | 0.00077            | -                 | -     | -                 | -  | -                 | 0.00001            | -                 | - |

Comments

#1 Quantification of linear and branched isomers has been condu

\*RPDs have only been considered where a concentratic

\*\*Elevated RPDs are highlighted as per QAQC Profile se

\*\*\*Interlab Duplicates are matched on a per compound l

|   | Unit | EM2305195         |             | RPD | EM2305195         |                    | RPD | EM2305195         |                   | RPD | EM2305195         |   |
|---|------|-------------------|-------------|-----|-------------------|--------------------|-----|-------------------|-------------------|-----|-------------------|---|
|   |      | 0927_SW020_230321 |             |     | 975318            |                    |     | EM2305194         |                   |     |                   |   |
|   |      | 21 Mar 2023       | 21 Mar 2023 |     | 0927_SW020_230321 | 0927_OC205_230321  |     | 0927_SW088_230321 | 0927_OC106_230321 |     | 0927_SW088_230321 |   |
| NA  |      |                   |             |     |                   |                    |     |                   |                   |     |                   |   |
| Perfluorononane sulfonate (PFNS)                              | µg/L | -                 | -           | -   | -                 | <0.01              | -   | -                 | -                 | -   | -                 | - |
| Sum of WA DWER PFAS (n=10)*                                   | µg/L | 0.30              | 0.33        | 10  | 0.30              | 0.62               | 70  | 0.08              | 0.07              | 13  | 0.08              |   |
| Perfluorocarbons  |      |                   |             |     |                   |                    |     |                   |                   |     |                   |   |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.10              | 0.12        | 18  | 0.10              | 0.21 <sup>#1</sup> | 71  | 0.04              | 0.03              | 29  | 0.04              |   |
| Perfluorooctanoate (PFOA)                                     | µg/L | 0.01              | 0.01        | 0   | 0.01              | 0.02 <sup>#1</sup> | 67  | <0.01             | <0.01             | 0   | <0.01             |   |
| Sum of PFHxS and PFOS   | µg/L | 0.24              | 0.26        | 8   | 0.24              | 0.47               | 65  | 0.08              | 0.07              | 13  | 0.08              |   |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 0.02              | 0.02        | 0   | 0.02              | 0.03 <sup>#1</sup> | 40  | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | <0.02             | 0.02        | 0   | <0.02             | 0.04 <sup>#1</sup> | 67  | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.14              | 0.14        | 0   | 0.14              | 0.26 <sup>#1</sup> | 60  | 0.04              | 0.04              | 0   | 0.04              |   |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | <0.02             | <0.02       | 0   | <0.02             | 0.02 <sup>#1</sup> | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.01              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | <0.1              | <0.1        | 0   | <0.1              | <0.05              | 0   | <0.1              | <0.1              | 0   | <0.1              |   |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | <0.02             | <0.02       | 0   | <0.02             | 0.03               | 40  | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 0.03              | 0.04        | 29  | 0.03              | 0.06               | 67  | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluoropropanesulfonic acid (PFPrS)                         | µg/L | -                 | -           | -   | -                 | 0.01               | -   | -                 | -                 | -   | -                 |   |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | <0.02             | <0.02       | 0   | <0.02             | 0.01 <sup>#1</sup> | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.01              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.01              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.01              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.01              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.01              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.01              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.05              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.05              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.05              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.05              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.05              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.05              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | <0.02       | 0   | <0.02             | <0.05              | 0   | <0.02             | <0.02             | 0   | <0.02             |   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.01              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| 6:2 Fluorotelomer Sulfonate (6:2 FIS)                         | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.05              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| 8:2 Fluorotelomer sulfonate (8:2 FIS)                         | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.01              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | <0.05       | 0   | <0.05             | <0.01              | 0   | <0.05             | <0.05             | 0   | <0.05             |   |
| Sum of PFAS   | µg/L | 0.30              | 0.35        | 15  | 0.30              | 0.69               | 79  | 0.08              | 0.07              | 13  | 0.08              |   |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | µg/L | -                 | -           | -   | -                 | 0.23               | -   | -                 | -                 | -   | -                 |   |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | µg/L | -                 | -           | -   | -                 | 0.00049            | -   | -                 | -                 | -   | -                 |   |

Comments

#1 Quantification of linear and branched isomers has been conducted

\*RPDs have only been considered where a concentration is above the detection limit

\*\*Elevated RPDs are highlighted as per QAQC Profile section 4.1.2

\*\*\*Interlab Duplicates are matched on a per compound basis

|   |      | 975318             |     |
|---|------|--------------------|-----|
|   |      | 0927_OC206_230321  |     |
|   |      | 21 Mar 2023        | RPD |
|   | Unit |                    |     |
| NA  |      |                    |     |
| Perfluorononane sulfonate (PFNS)                              | µg/L | <0.01              | -   |
| Sum of WA DWER PFAS (n=10)*                                   | µg/L | 0.25               | 103 |
| Perfluorocarbons  |      |                    |     |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.08 <sup>#1</sup> | 67  |
| Perfluorooctanoate (PFOA)                                     | µg/L | 0.02 <sup>#1</sup> | 67  |
| Sum of PFHxS and PFOS   | µg/L | 0.16               | 67  |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 0.01 <sup>#1</sup> | 0   |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | 0.01 <sup>#1</sup> | 0   |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.08 <sup>#1</sup> | 67  |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | <0.01              | 0   |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.01              | 0   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | <0.05              | 0   |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | 0.03               | 40  |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 0.03               | 40  |
| Perfluoropropanesulfonic acid (PFPrS)                         | µg/L | <0.01              | -   |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | <0.01              | 0   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.01              | 0   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.01              | 0   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.01              | 0   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.01              | 0   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.01              | 0   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.01              | 0   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.05              | 0   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05              | 0   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | µg/L | <0.05              | 0   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05              | 0   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05              | 0   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.05              | 0   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.05              | 0   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.01              | 0   |
| 6:2 Fluorotelomer Sulfonate (6:2 FIS)                         | µg/L | <0.05              | 0   |
| 8:2 Fluorotelomer sulfonate (8:2 FIS)                         | µg/L | <0.01              | 0   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.01              | 0   |
| Sum of PFAS   | µg/L | 0.26               | 106 |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | µg/L | 0.1                | -   |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | µg/L | 0.00018            | -   |

Comments

#1 Quantification of linear and branched isomers has been condu

\*RPDs have only been considered where a concentratic

\*\*Elevated RPDs are highlighted as per QAQC Profile se

\*\*\*Interlab Duplicates are matched on a per compound l

| Lab Report Number   | EM2304822         | EM2304822         | 973583            | EM2305194         | 975318            | EM2304822         | EM2304822         | EM2304822         |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Field ID  | 0927_QC500_230317 | 0927_QC501_230317 | 0927_QC502_230317 | 0927_QC503_230322 | 0927_QC504_230322 | 0927_QC300_230316 | 0927_QC301_230316 | 0927_QC302_230317 |
| Date  | 17 Mar 2023       | 17 Mar 2023       | 17 Mar 2023       | 22 Mar 2023       | 22 Mar 2023       | 16 Mar 2023       | 16 Mar 2023       | 17 Mar 2023       |
| Sample Type   | Trip_B            | Trip_B            | Trip_B            | Trip_B            | Trip_B            | Rinsate           | Rinsate           | Rinsate           |
| Unit  | LOR               |                   |                   |                   |                   |                   |                   |                   |
| <b>Perfluorocarbons</b>                                       |                   |                   |                   |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Perfluorooctanoate (PFOA)                                     | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Sum of PFHxS and PFOS   | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorobutanoic acid (PFBA)                                 | µg/L              | 0.05              | <0.1              | <0.1              | <0.05             | <0.1              | <0.1              | <0.1              |
| Perfluoropentanoic acid (PFPeA)                               | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorohexanoic acid (PFHxA)                                | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluoropropanesulfonic acid (PFPrS)                         | µg/L              |                   |                   | <0.01             |                   | <0.01             |                   |                   |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorononanoic acid (PFNA)                                 | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorodecanoic acid (PFDA)                                 | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L              | 0.01              | <0.02             | <0.02             | <0.01             | <0.02             | <0.02             | <0.02             |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L              | 0.01              | <0.05             | <0.05             | <0.01             | <0.05             | <0.05             | <0.05             |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L              | 0.02              | <0.02             | <0.02             | <0.05             | <0.02             | <0.02             | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L              | 0.02              | <0.02             | <0.02             | <0.05             | <0.02             | <0.02             | <0.02             |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L              | 0.02              | <0.02             | <0.02             | <0.05             | <0.02             | <0.02             | <0.02             |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L              | 0.01              | <0.05             | <0.05             | <0.01             | <0.05             | <0.05             | <0.05             |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L              | 0.01              | <0.05             | <0.05             | <0.01             | <0.05             | <0.05             | <0.05             |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L              | 0.01              | <0.05             | <0.05             | <0.01             | <0.05             | <0.05             | <0.05             |
| Sum of PFAS   | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | µg/L              |                   |                   | <0.01             |                   | <0.01             |                   | <0.01             |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | µg/L              | 0.01              |                   | <0.01             |                   | <0.01             |                   | <0.01             |

|   |      | EM2304822         | EM2305194         | EM2305194         | EM2305194         | EM2305194         |
|---|------|-------------------|-------------------|-------------------|-------------------|-------------------|
|   |      | 0927_QC303_230317 | 0927_QC304_230320 | 0927_QC305_230320 | 0927_QC306_230321 | 0927_QC307_230322 |
|   |      | 17 Mar 2023       | 20 Mar 2023       | 20 Mar 2023       | 21 Mar 2023       | 22 Mar 2023       |
|   |      | Rinsate           | Rinsate           | Rinsate           | Rinsate           | Rinsate           |
|   | Unit |                   |                   |                   |                   |                   |
| <b>Perfluorocarbons</b>                                       |      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Perfluorooctanoate (PFOA)                                     | µg/L | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Sum of PFHxS and PFOS   | µg/L | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluoropropanesulfonic acid (PFPrS)                         | µg/L |                   |                   |                   |                   |                   |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Sum of PFAS   | µg/L | <0.01             | <0.01             | <0.01             | <0.01             | <0.01             |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | µg/L |                   |                   |                   |                   |                   |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | µg/L |                   |                   |                   |                   |                   |

APPENDIX

C

LABORATORY CERTIFICATES



Forwarded to  
Secondary Lab  
Initials Su Date 17/3

Environmental Division  
Melbourne  
Work Order Reference  
EM2304822



Telephone : + 61-3-8549 9600

### Custody Document for Submissions via ALS Compass App

Project: DEF 19008 Client: CARDNO Project Manager: \_\_\_\_\_

Phone: ( \_\_\_\_\_ )

ALS Compass COC Reference: 49731 +2 # Samples: \_\_\_\_\_

Sampler: \_\_\_\_\_


Phone: ( \_\_\_\_\_ )

Turnaround Requirements: Standard \_\_\_\_\_ Urgent \_\_\_\_\_

|                       |  |     |        |
|-----------------------|--|-----|--------|
| Special Instructions: | ALS Use Only                               |     |        |
|                       | Custody seal intact?                       | YES | NO N/A |
|                       | Free ice / frozen ice bricks upon receipt? | YES | NO N/A |
|                       | Random sample temperature on receipt?      |     | °C     |

|                  |   |                  |              |
|------------------|---|------------------|--------------|
| Custody:         |   |                  |              |
| Relinquished by: | Received by: <u>Kr</u>                      | Relinquished by: | Received by: |
| Date / Time:     | <u>17/3/23</u><br>Date / Time: <u>16.25</u> | Date / Time:     | Date / Time: |



|  |                                  |  |                              |              |     |
|--|----------------------------------|--|------------------------------|--------------|-----|
|  <b>CHAIN OF CUSTODY</b><br>COC#: 49731      ALS Laboratory: EM Melbourne | RELINQUISHED BY:                 | RECEIVED BY:                                       | RELINQUISHED BY:             | RECEIVED BY: |     |
|  | DATE TIME:                       | DATE TIME: 16:25<br>17/3/23                        | DATE TIME:                   | DATE TIME:   |     |
| CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD   | TURNAROUND REQUIREMENTS : 5 Days |  | LABORATORY USE ONLY (Circle) |              |     |
| PROJECT: VIC_0927_PFSOMP   | Biohazard info:                  | Custody Seal intact?                               | Yes                          | No           | N/A |
| SITE: GW - ONSITE  |                                  | Free ice / frozen ice bricks present upon receipt? | Yes                          | No           | N/A |
| ORDER NO:  |                                  | Random Sample Temperature on Receipt:              | C                            |              |     |
| PROJECT MANAGER: [REDACTED]  | CONTACT PH:                      | SAMPLER MOBILE:                                    | Other comments:              |              |     |
| PRIMARY SAMPLER: [REDACTED]  | QUOTE NO: SY/139/19_Laverton     | / EM2023MWHAUS000<br>2                             |                              |              |     |
| EMAIL REPORTS TO:  |                                  |  |                              |              |     |
| EMAIL INVOICES TO:   |                                  |  |                              |              |     |

| SAMPLE DETAILS |                   |             |                        |        |                      |         | ANALYSIS REQUIRED |                      |                        |
|----------------|-------------------|-------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| SAMPLE         | NAME              | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 001            | 0927_MW102_230316 |             | 16/03/2023<br>03:36 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 002            | 0927_MW103_230316 |             | 16/03/2023<br>11:53 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 003            | 0927_MW105_230316 |             | 16/03/2023<br>01:53 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      | X                 |                      | Internal lab qc        |
| 004            | 0927_MW107_230316 |             | 16/03/2023<br>01:52 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      | X                 |                      | internal lab qc        |
| 005            | 0927_MW109_230317 |             | 17/03/2023<br>09:14 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 006            | 0927_MW110_230316 |             | 16/03/2023<br>03:00 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 007            | 0927_MW115_230316 |             | 16/03/2023<br>03:40 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 008            | 0927_MW117_230316 |             | 16/03/2023<br>03:33 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 009            | 0927_MW118_230316 |             | 16/03/2023<br>03:37 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      | X                 |                      | Internal lab qc        |

CLIENT: MWHHAUS - STANTEC AUSTRALIA PTY LTD  
 PROJECT: VIC\_0927\_PFAOSMP  
 SITE: GW - ONSITE  
 ORDER NO:  
 PROJECT MANAGER:  
 PRIMARY SAMPLER:  
 EMAIL REPORTS TO:  
 EMAIL INVOICES TO:

RELINQUISHED BY:  
 DATE TIME:

RECEIVED BY:  
 DATE TIME: 16:25  
 17/3/23

RELINQUISHED BY:  
 DATE TIME:

RECEIVED BY:  
 DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days  
 Biohazard info:

LABORATORY USE ONLY (Circle)  
 Custody Seal intact? Yes No N/A  
 Free ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: °C  
 Other comments:

CONTACT PH: SAMPLER MOBILE:  
 QUOTE NO: SY/139/19\_Laverton / EM2023MWHHAUS000  
 2

| SAMPLE DETAILS |                   |             |                        |        |                      |         | ANALYSIS REQUIRED |                      |                        |
|----------------|-------------------|-------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| SAMPLE         | NAME              | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 010            | 0927_MW120_230316 |             | 16/03/2023<br>03:42 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 011            | 0927_MW138_230316 |             | 16/03/2023<br>02:46 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 012            | 0927_MW139_230316 |             | 16/03/2023<br>02:27 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 013            | 0927_MW140_230316 |             | 16/03/2023<br>03:17 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 014            | 0927_MW152_230317 |             | 17/03/2023<br>09:48 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 015            | 0927_MW155_230316 |             | 16/03/2023<br>11:56 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 016            | 0927_MW163_230316 |             | 16/03/2023<br>01:10 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 017            | 0927_MW185_230316 |             | 16/03/2023<br>03:43 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 018            | 0927_MW192_230316 |             | 16/03/2023<br>11:59 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |

**CHAIN OF CUSTODY**

ALS COC#: 49731 ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

CLIENT: MWHHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: VIC\_0927\_PFSOMP

SITE: GW - ONSITE

ORDER NO:

PROJECT MANAGER:

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?

Yes No N/A

Free ice / frozen ice bricks present upon receipt?

Yes No N/A

Random Sample Temperature on Receipt:

°C

Other comments:

CONTACT PH:

SAMPLER MOBILE:

QUOTE NO: SY/139/19\_Laverton

/ EM2023MWHHAUS000  
2

## SAMPLE DETAILS

## ANALYSIS REQUIRED

| SAMPLE | NAME              | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
|--------|-------------------|-------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| 019    | 0927_MW144_230316 |             | 16/03/2023<br>03:38 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 020    | 0927_MW146_230316 |             | 16/03/2023<br>03:34 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 021    | 0927_MW182_230316 |             | 16/03/2023<br>03:41 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 022    | 0927_MW200_230316 |             | 16/03/2023<br>11:58 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 023    | 0927_MW207_230316 |             | 16/03/2023<br>11:52 AM | WATER  | ALS: 6<br>Non ALS: 0 | No      | X                 |                      | internal lab qc        |
| 024    | 0927_MW208_230316 |             | 16/03/2023<br>12:58 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 025    | 0927_MW217_230317 |             | 17/03/2023<br>11:30 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 026    | 0927_QC100_230316 |             | 16/03/2023<br>12:01 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 027    | 0927_QC101_230316 |             | 16/03/2023<br>03:45 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |

**CHAIN OF CUSTODY**

COC#: 49731

ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

CLIENT: MWHHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: VIC\_0927\_PFSOMP

SITE: GW - ONSITE

ORDER NO:

PROJECT MANAGER:

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?

Yes No N/A

Free ice / frozen ice bricks present upon receipt?

Yes No N/A

Random Sample Temperature on Receipt:

C

Other comments:

CONTACT PH:

SAMPLER MOBILE:

QUOTE NO: SY/139/19\_Laverton

/ EM2023MWHHAUS000

2

## SAMPLE DETAILS

## ANALYSIS REQUIRED

| SAMPLE | NAME              | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
|--------|-------------------|-------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| 028    | 0927_QC102_230316 |             | 16/03/2023<br>12:57 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 029    | 0927_MW211_230316 |             | 16/03/2023<br>03:50 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 030    | 0927_QC103_230316 |             | 16/03/2023<br>03:51 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 031    | 0927_QC300_230316 |             | 16/03/2023<br>03:57 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 032    | 0927_QC301_230316 |             | 16/03/2023<br>03:58 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 033    | 0927_QC302_230317 |             | 17/03/2023<br>11:47 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 034    | 0927_QC303_230317 |             | 17/03/2023<br>11:51 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 035    | 0927_QC500_230317 |             | 17/03/2023<br>12:08 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 036    | 0927_QC501_230317 |             | 17/03/2023<br>12:08 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM2304822

Client : STANTEC AUSTRALIA PTY LTD

Contact : [REDACTED]

Address : [REDACTED]

E-mail : [REDACTED]

Telephone : ----

Facsimile : ----

Project : VIC\_0927\_PFASOMP

Order number : -

C-O-C number : 49731

Site : GW - ONSITE

Sampler : [REDACTED]

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Address : [REDACTED]

E-mail : [REDACTED]

Telephone : [REDACTED]

Facsimile : [REDACTED]

Page : 1 of 4

Quote number : EM2023MWHHAUS0002 (SY/139/19\_Laverton)

QC Level : NEPM 2013 B3 & ALS QC Standard

Dates

Date Samples Received : 17-Mar-2023 16:25

Client Requested Due Date : 27-Mar-2023

Issue Date : 20-Mar-2023

Scheduled Reporting Date : 27-Mar-2023

Delivery Details

Mode of Delivery : Carrier

No. of coolers/boxes : 2

Receipt Detail :

Security Seal : Not Available

Temperature : 14.2°C - Ice present

No. of samples received / analysed : 36 / 36

General Comments

- This report contains the following information:
- Sample Container(s)/Preservation Non-Compliances
- Summary of Sample(s) and Requested Analysis
- Proactive Holding Time Report
- Requested Deliverables
Please direct any queries related to sample condition / numbering / breakages to Client Services.
Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
Analytical work for this work order will be conducted at ALS Springvale.
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.
Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis...



## Sample Container(s)/Preservation Non-Compliances

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

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

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

| Laboratory sample ID | Sampling date / time | Sample ID         | WATER - EP231X<br>PFAS - Full Suite (28 analytes) |
|----------------------|----------------------|-------------------|---|
| EM2304822-001        | 16-Mar-2023 15:36    | 0927_MW102_230316 | ✓   |
| EM2304822-002        | 16-Mar-2023 11:53    | 0927_MW103_230316 | ✓   |
| EM2304822-003        | 16-Mar-2023 13:53    | 0927_MW105_230316 | ✓   |
| EM2304822-004        | 16-Mar-2023 13:52    | 0927_MW107_230316 | ✓   |
| EM2304822-005        | 17-Mar-2023 09:14    | 0927_MW109_230317 | ✓   |
| EM2304822-006        | 16-Mar-2023 15:00    | 0927_MW110_230316 | ✓   |
| EM2304822-007        | 16-Mar-2023 15:40    | 0927_MW115_230316 | ✓   |
| EM2304822-008        | 16-Mar-2023 15:33    | 0927_MW117_230316 | ✓   |
| EM2304822-009        | 16-Mar-2023 15:37    | 0927_MW118_230316 | ✓   |
| EM2304822-010        | 16-Mar-2023 15:42    | 0927_MW120_230316 | ✓   |
| EM2304822-011        | 16-Mar-2023 14:46    | 0927_MW138_230316 | ✓   |
| EM2304822-012        | 16-Mar-2023 14:27    | 0927_MW139_230316 | ✓   |
| EM2304822-013        | 16-Mar-2023 15:17    | 0927_MW140_230316 | ✓   |
| EM2304822-014        | 17-Mar-2023 09:48    | 0927_MW152_230317 | ✓   |
| EM2304822-015        | 16-Mar-2023 11:56    | 0927_MW155_230316 | ✓   |
| EM2304822-016        | 16-Mar-2023 13:10    | 0927_MW163_230316 | ✓   |
| EM2304822-017        | 16-Mar-2023 15:43    | 0927_MW185_230316 | ✓   |
| EM2304822-018        | 16-Mar-2023 11:59    | 0927_MW192_230316 | ✓   |
| EM2304822-019        | 16-Mar-2023 15:38    | 0927_MW144_230316 | ✓   |
| EM2304822-020        | 16-Mar-2023 15:34    | 0927_MW146_230316 | ✓   |
| EM2304822-021        | 16-Mar-2023 15:41    | 0927_MW182_230316 | ✓   |
| EM2304822-022        | 16-Mar-2023 11:58    | 0927_MW200_230316 | ✓   |
| EM2304822-023        | 16-Mar-2023 11:52    | 0927_MW207_230316 | ✓   |
| EM2304822-024        | 16-Mar-2023 12:56    | 0927_MW208_230316 | ✓   |
| EM2304822-025        | 17-Mar-2023 11:30    | 0927_MW217_230317 | ✓   |
| EM2304822-026        | 16-Mar-2023 12:01    | 0927_QC100_230316 | ✓   |
| EM2304822-027        | 16-Mar-2023 15:45    | 0927_QC101_230316 | ✓   |
| EM2304822-028        | 16-Mar-2023 12:57    | 0927_QC102_230316 | ✓   |
| EM2304822-029        | 16-Mar-2023 15:50    | 0927_MW211_230316 | ✓   |
| EM2304822-030        | 16-Mar-2023 15:51    | 0927_QC103_230316 | ✓   |
| EM2304822-031        | 16-Mar-2023 15:57    | 0927_QC300_230316 | ✓   |
| EM2304822-032        | 16-Mar-2023 15:58    | 0927_QC301_230316 | ✓   |
| EM2304822-033        | 17-Mar-2023 11:47    | 0927_QC302_230317 | ✓   |
| EM2304822-034        | 17-Mar-2023 11:51    | 0927_QC303_230317 | ✓   |
| EM2304822-035        | 17-Mar-2023 12:08    | 0927_QC500_230317 | ✓   |



|               |                   |                   |   |
|---------------|-------------------|-------------------|---|
|               |                   |                   | WATER - EP231X<br>PFAS - Full Suite (28 analytes) |
| EM2304822-036 | 17-Mar-2023 12:08 | 0927_QC501_230317 | ✓   |

### *Proactive Holding Time Report*

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



## Requested Deliverables

### ACCOUNTS ADDRESS

|  |       |
|--|-------|
| - A4 - AU Tax Invoice (INV)                                    | Email |
| [REDACTED]   |       |
| - *AU Certificate of Analysis - NATA (COA)                     | Email |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email |
| - Chain of Custody (CoC) (COC)                                 | Email |
| - EDI Format - ESDAT (ESDAT)                                   | Email |
| - EDI Format - XTab (XTAB)                                     | Email |
| [REDACTED]   |       |
| - *AU Certificate of Analysis - NATA (COA)                     | Email |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email |
| - Chain of Custody (CoC) (COC)                                 | Email |
| - EDI Format - ESDAT (ESDAT)                                   | Email |
| - EDI Format - XTab (XTAB)                                     | Email |
| [REDACTED]   |       |
| - *AU Certificate of Analysis - NATA (COA)                     | Email |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email |
| - Chain of Custody (CoC) (COC)                                 | Email |
| - EDI Format - ESDAT (ESDAT)                                   | Email |
| - EDI Format - XTab (XTAB)                                     | Email |
| [REDACTED]   |       |
| - *AU Certificate of Analysis - NATA (COA)                     | Email |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email |
| - A4 - AU Tax Invoice (INV)                                    | Email |
| - Chain of Custody (CoC) (COC)                                 | Email |
| - EDI Format - ESDAT (ESDAT)                                   | Email |
| - EDI Format - XTab (XTAB)                                     | Email |
| [REDACTED]   |       |
| - *AU Certificate of Analysis - NATA (COA)                     | Email |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email |
| - Chain of Custody (CoC) (COC)                                 | Email |
| - EDI Format - ESDAT (ESDAT)                                   | Email |
| - EDI Format - XTab (XTAB)                                     | Email |



## CERTIFICATE OF ANALYSIS

**Work Order** : **EM2304822**  
**Client** : **STANTEC AUSTRALIA PTY LTD**  
**Contact** : [REDACTED]  
**Address** : LEVEL 21 28 FRESHWATER PLACE  
 SOUTHBANK VIC, AUSTRALIA 3006  
  
**Telephone** : ----  
**Project** : VIC\_0927\_PFASOMP  
**Order number** : -  
**C-O-C number** : 49731  
**Sampler** : [REDACTED]  
**Site** : GW - ONSITE  
**Quote number** : SY/139/19\_Laverton  
**No. of samples received** : 36  
**No. of samples analysed** : 36

**Page** : 1 of 21  
**Laboratory** : Environmental Division Melbourne  
**Contact** : [REDACTED]  
**Address** : 4 Westall Rd Springvale VIC Australia 3171  
  
**Telephone** : +6138549 9609  
**Date Samples Received** : 17-Mar-2023 16:25  
**Date Analysis Commenced** : 21-Mar-2023  
**Issue Date** : 23-Mar-2023 11:40



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.

| <i>Signatories</i>   | <i>Position</i>        | <i>Accreditation Category</i>       |
|--|------------------------|-------------------------------------|
| <span style="background-color: black; color: black;">[REDACTED]</span> | Senior Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X: Poor matrix spike recovery for sample EM2304822-009 due to sample matrix interference.
- EP231X: Poor surrogate recovery for samples EM2304822-016 due to sample matrix interference. Confirmed by re-analysis.
- EP231X: Poor matrix spike recovery for sample EM2304822-003 due to sample matrix interference. Confirmed by re-analysis.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Particular samples EM2304822-007,017,025 positive result have been confirmed by direct injection method using second container.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)     |            |      |      | Sample ID            | 0927_MW102_230316 | 0927_MW103_230316 | 0927_MW105_230316 | 0927_MW107_230316 | 0927_MW109_230317 |
|--|------------|------|------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  |            |      |      | Sampling date / time | 16-Mar-2023 15:36 | 16-Mar-2023 11:53 | 16-Mar-2023 13:53 | 16-Mar-2023 13:52 | 17-Mar-2023 09:14 |
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-001        | EM2304822-002     | EM2304822-003     | EM2304822-004     | EM2304822-005     |                   |
|  |            |      |      | Result               | Result            | Result            | Result            | Result            |                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 1.18                 | 3.17              | 15.5              | 0.64              | 0.04              |                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 1.37                 | 2.41              | 17.4              | 0.76              | 0.05              |                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 8.10                 | 8.75              | 113               | 4.36              | 0.40              |                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.74                 | 0.24              | 3.76              | 0.15              | <0.02             |                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 9.32                 | 5.91              | 69.8              | 0.42              | 0.41              |                   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | 0.2                  | 0.3               | 1.3               | <0.1              | <0.1              |                   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.44                 | 0.82              | 7.88              | 0.20              | <0.02             |                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 2.05                 | 4.01              | 51.6              | 1.08              | 0.06              |                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.25                 | 0.20              | 2.86              | 0.14              | <0.02             |                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.37                 | 0.28              | 4.04              | 0.17              | 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             |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID         | 0927_MW102_230316 | 0927_MW103_230316 | 0927_MW105_230316 | 0927_MW107_230316 | 0927_MW109_230317 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 16-Mar-2023 15:36 | 16-Mar-2023 11:53 | 16-Mar-2023 13:53 | 16-Mar-2023 13:52 | 17-Mar-2023 09:14 |                   |
| Compound  | CAS Number         | LOR  | Unit | EM2304822-001     | EM2304822-002     | EM2304822-003     | EM2304822-004     | EM2304822-005     |                   |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 24.0              | 26.1              | 290               | 7.92              | 0.97              |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 17.4              | 14.7              | 183               | 4.78              | 0.81              |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 21.9              | 23.4              | 266               | 7.01              | 0.92              |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 86.4              | 88.6              | 74.6              | 95.1              | 92.7              |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | 92.3              | 91.7              | 81.8              | 87.8              | 95.3              |                   |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)     |            |      |      | Sample ID         | 0927_MW110_230316 | 0927_MW115_230316 | 0927_MW117_230316 | 0927_MW118_230316 | 0927_MW120_230316 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 16-Mar-2023 15:00 | 16-Mar-2023 15:40 | 16-Mar-2023 15:33 | 16-Mar-2023 15:37 | 16-Mar-2023 15:42 |                   |
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-006     | EM2304822-007     | EM2304822-008     | EM2304822-009     | EM2304822-010     |                   |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 3.88              | <0.02             | 10.3              | 4.44              | 1.37              |                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 5.54              | <0.02             | 12.3              | 6.14              | 1.17              |                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 35.6              | 0.01              | 54.3              | 30.8              | 6.05              |                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 2.37              | <0.02             | 1.81              | 1.88              | 0.27              |                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 59.1              | 0.02              | 12.1              | 21.1              | 5.17              |                   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | 0.3               | <0.1              | 0.6               | 0.4               | 0.2               |                   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 1.28              | <0.02             | 2.85              | 1.30              | 0.56              |                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 7.88              | <0.02             | 16.8              | 6.29              | 2.51              |                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.66              | <0.02             | 1.22              | 0.72              | 0.20              |                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 1.37              | <0.01             | 1.53              | 1.43              | 0.31              |                   |
| 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             |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | 0.03              | <0.02             |                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |                   |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID         | 0927_MW110_230316 | 0927_MW115_230316 | 0927_MW117_230316 | 0927_MW118_230316 | 0927_MW120_230316 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 16-Mar-2023 15:00 | 16-Mar-2023 15:40 | 16-Mar-2023 15:33 | 16-Mar-2023 15:37 | 16-Mar-2023 15:42 |                   |
| Compound  | CAS Number         | LOR  | Unit | EM2304822-006     | EM2304822-007     | EM2304822-008     | EM2304822-009     | EM2304822-010     |                   |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 118               | 0.03              | 114               | 74.5              | 17.8              |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 94.7              | 0.03              | 66.4              | 51.9              | 11.2              |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 110               | 0.03              | 99.7              | 66.5              | 16.4              |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 72.8              | 93.9              | 83.0              | 76.7              | 85.8              |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | 79.6              | 92.8              | 84.4              | 88.8              | 91.2              |                   |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW138_230316 | 0927_MW139_230316 | 0927_MW140_230316 | 0927_MW152_230317 | 0927_MW155_230316 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 16-Mar-2023 14:46 | 16-Mar-2023 14:27 | 16-Mar-2023 15:17 | 17-Mar-2023 09:48 | 16-Mar-2023 11:56 |
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-011     | EM2304822-012     | EM2304822-013     | EM2304822-014     | EM2304822-015     |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 1.00              | 1.33              | 0.10              | 3.30              | 0.11              |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.92              | 2.32              | 0.08              | 3.04              | 0.14              |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 5.24              | 16.0              | 0.52              | 10.5              | 1.05              |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.20              | 0.41              | <0.02             | 0.49              | 0.07              |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 3.65              | 6.33              | 0.44              | 8.53              | 2.65              |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | <0.1              | 0.4               | <0.1              |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.21              | 0.60              | 0.03              | 0.69              | 0.38              |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 1.13              | 4.11              | 0.12              | 2.58              | 0.45              |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.10              | 0.26              | <0.02             | 0.42              | 0.23              |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.16              | 0.47              | 0.02              | 0.40              | 0.24              |
| 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             |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | 0.02              | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW138_230316 | 0927_MW139_230316 | 0927_MW140_230316 | 0927_MW152_230317 | 0927_MW155_230316 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 16-Mar-2023 14:46 | 16-Mar-2023 14:27 | 16-Mar-2023 15:17 | 17-Mar-2023 09:48 | 16-Mar-2023 11:56 |
| Compound  | CAS Number         | LOR  | Unit | EM2304822-011     | EM2304822-012     | EM2304822-013     | EM2304822-014     | EM2304822-015     |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |
| 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             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |
| 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             | 0.10              |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | 0.27              |
| 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             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 12.6              | 31.8              | 1.31              | 30.4              | 5.69              |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 8.89              | 22.3              | 0.96              | 19.0              | 3.70              |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 11.5              | 29.1              | 1.23              | 26.8              | 5.48              |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 91.2              | 76.5              | 79.0              | 85.5              | 91.3              |
| 13C8-PFOA   | ----               | 0.02 | %    | 89.0              | 81.4              | 85.8              | 90.5              | 91.5              |





## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW163_230316 | 0927_MW185_230316 | 0927_MW192_230316 | 0927_MW144_230316 | 0927_MW146_230316 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  |            |      |      | 16-Mar-2023 13:10 | 16-Mar-2023 15:43 | 16-Mar-2023 11:59 | 16-Mar-2023 15:38 | 16-Mar-2023 15:34 |
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-016     | EM2304822-017     | EM2304822-018     | EM2304822-019     | EM2304822-020     |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 31.4              | 0.07              | 0.25              | 0.07              | 0.07              |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 36.5              | 0.12              | 0.23              | 0.07              | 0.08              |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 269               | 1.17              | 1.80              | 0.52              | 0.48              |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 33.0              | 0.07              | 0.11              | 0.02              | 0.02              |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 552               | 1.62              | 2.66              | 0.83              | 0.97              |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | 0.26              | <0.02             | <0.02             | <0.02             | <0.02             |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | 3.0               | <0.1              | <0.1              | <0.1              | <0.1              |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 12.3              | 0.04              | 0.07              | <0.02             | <0.02             |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 70.9              | 0.17              | 0.44              | 0.09              | 0.09              |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 7.80              | 0.03              | 0.04              | <0.02             | <0.02             |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 18.1              | 0.05              | 0.09              | 0.02              | 0.02              |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | 0.11              | <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             |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | 0.41              | <0.02             | <0.02             | <0.02             | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID         | 0927_MW163_230316 | 0927_MW185_230316 | 0927_MW192_230316 | 0927_MW144_230316 | 0927_MW146_230316 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 16-Mar-2023 13:10 | 16-Mar-2023 15:43 | 16-Mar-2023 11:59 | 16-Mar-2023 15:38 | 16-Mar-2023 15:34 |                   |
| Compound  | CAS Number         | LOR  | Unit | EM2304822-016     | EM2304822-017     | EM2304822-018     | EM2304822-019     | EM2304822-020     |                   |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 1030              | 3.34              | 5.69              | 1.62              | 1.73              |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 821               | 2.79              | 4.46              | 1.35              | 1.45              |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 964               | 3.15              | 5.35              | 1.53              | 1.63              |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 60.3              | 92.0              | 86.6              | 88.4              | 99.2              |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | 84.6              | 92.5              | 91.7              | 91.6              | 92.0              |                   |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)     |            |      |      | Sample ID         | 0927_MW182_230316 | 0927_MW200_230316 | 0927_MW207_230316 | 0927_MW208_230316 | 0927_MW217_230317 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 16-Mar-2023 15:41 | 16-Mar-2023 11:58 | 16-Mar-2023 11:52 | 16-Mar-2023 12:56 | 17-Mar-2023 11:30 |                   |
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-021     | EM2304822-022     | EM2304822-023     | EM2304822-024     | EM2304822-025     |                   |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.31              | 0.83              | 0.86              | 7.75              | <0.02             |                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.31              | 0.74              | 1.10              | 9.62              | <0.02             |                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 2.58              | 4.13              | 10.0              | 57.0              | 0.09              |                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.07              | 0.28              | 0.73              | 4.46              | <0.02             |                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 1.10              | 7.94              | 11.3              | 128               | 0.03              |                   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | 0.06              | <0.02             |                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | 0.2               | 0.1               | 1.2               | <0.1              |                   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.07              | 0.32              | 0.32              | 2.56              | <0.02             |                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.39              | 1.69              | 1.68              | 11.6              | <0.02             |                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.03              | 0.23              | 0.22              | 1.85              | <0.02             |                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.07              | 0.23              | 0.50              | 3.43              | <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             |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | 0.03              | 0.02              | 0.41              | <0.02             |                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |                   |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID     | 0927_MW182_230316 | 0927_MW200_230316 | 0927_MW207_230316 | 0927_MW208_230316 | 0927_MW217_230317 |
|---|--------------------|------|------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      |               | 16-Mar-2023 15:41 | 16-Mar-2023 11:58 | 16-Mar-2023 11:52 | 16-Mar-2023 12:56 | 17-Mar-2023 11:30 |
| Compound  | CAS Number         | LOR  | Unit | EM2304822-021 | EM2304822-022     | EM2304822-023     | EM2304822-024     | EM2304822-025     |                   |
|   |                    |      |      | Result        | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |               |                   |                   |                   |                   |                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05         | <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             | <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             | <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             | <0.02             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |               |                   |                   |                   |                   |                   |
| 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             | <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             | <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             | <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             | <0.05             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |               |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 4.93          | 16.6              | 26.8              | 228               | 0.12              |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 3.68          | 12.1              | 21.3              | 185               | 0.12              |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 4.55          | 15.6              | 25.0              | 213               | 0.12              |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |               |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 85.5          | 82.4              | 80.3              | 83.5              | 80.4              |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | 94.3          | 92.2              | 91.1              | 92.3              | 89.2              |                   |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)     |            |      |      | Sample ID            | 0927_QC100_230316 | 0927_QC101_230316 | 0927_QC102_230316 | 0927_MW211_230316 | 0927_QC103_230316 |
|--|------------|------|------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  |            |      |      | Sampling date / time | 16-Mar-2023 12:01 | 16-Mar-2023 15:45 | 16-Mar-2023 12:57 | 16-Mar-2023 15:50 | 16-Mar-2023 15:51 |
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-026        | EM2304822-027     | EM2304822-028     | EM2304822-029     | EM2304822-030     |                   |
|  |            |      |      | Result               | Result            | Result            | Result            | Result            |                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.86                 | 1.14              | 6.90              | 0.07              | 0.07              |                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.75                 | 1.23              | 8.76              | 0.07              | 0.06              |                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 4.19                 | 8.08              | 55.7              | 0.44              | 0.46              |                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.29                 | 0.63              | 4.01              | <0.02             | <0.02             |                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 8.44                 | 9.99              | 120               | 0.11              | 0.09              |                   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                | <0.02             | 0.06              | <0.02             | <0.02             |                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | 0.1                  | 0.2               | 1.2               | <0.1              | <0.1              |                   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.32                 | 0.40              | 2.58              | <0.02             | <0.02             |                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 1.71                 | 1.86              | 10.1              | 0.07              | 0.07              |                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.23                 | 0.22              | 1.78              | <0.02             | <0.02             |                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.23                 | 0.36              | 3.45              | 0.02              | 0.02              |                   |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | 0.03                 | <0.02             | 0.42              | <0.02             | <0.02             |                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID         | 0927_QC100_230316 | 0927_QC101_230316 | 0927_QC102_230316 | 0927_MW211_230316 | 0927_QC103_230316 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 16-Mar-2023 12:01 | 16-Mar-2023 15:45 | 16-Mar-2023 12:57 | 16-Mar-2023 15:50 | 16-Mar-2023 15:51 |                   |
| Compound  | CAS Number         | LOR  | Unit | EM2304822-026     | EM2304822-027     | EM2304822-028     | EM2304822-029     | EM2304822-030     |                   |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 17.2              | 24.1              | 215               | 0.78              | 0.77              |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 12.6              | 18.1              | 176               | 0.55              | 0.55              |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 16.1              | 22.2              | 202               | 0.71              | 0.71              |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 84.8              | 85.2              | 81.4              | 82.9              | 77.4              |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | 93.3              | 90.7              | 90.2              | 91.8              | 91.5              |                   |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

0927\_QC301\_230316

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|  |            |      |      | Sampling date / time | 16-Mar-2023 15:58 | ----  | ----  | ----  | ----  |
|--|------------|------|------|----------------------|-------------------|-------|-------|-------|-------|
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-032        | -----             | ----- | ----- | ----- | ----- |
|  |            |      |      | Result               | ----              | ----  | ----  | ----  | ----  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                      |                   |       |       |       |       |
| 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                | ----              | ----  | ----  | ----  | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                      |                   |       |       |       |       |
| 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 (PFTTrDA)            | 72629-94-8 | 0.02 | µg/L | <0.02                | ----              | ----  | ----  | ----  | ----  |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                | ----              | ----  | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                      |                   |       |       |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                | ----              | ----  | ----  | ----  | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                | ----              | ----  | ----  | ----  | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                | ----              | ----  | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    | Sample ID            | 0927_QC301_230316 | ----          | ----  | ----  | ----  |
|---|--------------------|----------------------|-------------------|---------------|-------|-------|-------|
|   |                    | Sampling date / time | 16-Mar-2023 15:58 | ----          | ----  | ----  | ----  |
| Compound  | CAS Number         | LOR                  | Unit              | EM2304822-032 | ----- | ----- | ----- |
|   |                    |                      |                   | Result        | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |                      |                   |               |       |       |       |
| 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         | ----  | ----  | ----  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |                      |                   |               |       |       |       |
| 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         | ----  | ----  | ----  |
| <b>EP231P: PFAS Sums</b>                                  |                    |                      |                   |               |       |       |       |
| 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         | ----  | ----  | ----  |
| <b>EP231S: PFAS Surrogate</b>                             |                    |                      |                   |               |       |       |       |
| 13C4-PFOS   | ----               | 0.02                 | %                 | 90.6          | ----  | ----  | ----  |
| 13C8-PFOA   | ----               | 0.02                 | %                 | 93.0          | ----  | ----  | ----  |





## Analytical Results

| Sub-Matrix: RINSATE<br>(Matrix: WATER)         |            |      |      | Sample ID         | 0927_QC300_230316 | 0927_QC302_230317 | 0927_QC303_230317 | ----  | ---- |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------|------|
| Sampling date / time                           |            |      |      | 16-Mar-2023 15:57 | 17-Mar-2023 11:47 | 17-Mar-2023 11:51 | ----              | ----  |      |
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-031     | EM2304822-033     | EM2304822-034     | -----             | ----- |      |
|  |            |      |      | Result            | Result            | Result            | ----              | ----  |      |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |       |      |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | ----              | ----  |      |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | ----              | ----  |      |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |       |      |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | <0.1              | ----              | ----  |      |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | ----              | ----  |      |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |       |      |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |



## Analytical Results

| Sub-Matrix: RINSATE<br>(Matrix: WATER)                    |                    |      |      | Sample ID         | 0927_QC300_230316 | 0927_QC302_230317 | 0927_QC303_230317 | ----  | ---- |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------|------|
| Sampling date / time                                      |                    |      |      | 16-Mar-2023 15:57 | 17-Mar-2023 11:47 | 17-Mar-2023 11:51 | ----              | ----  |      |
| Compound  | CAS Number         | LOR  | Unit | EM2304822-031     | EM2304822-033     | EM2304822-034     | -----             | ----- |      |
|   |                    |      |      | Result            | Result            | Result            | ----              | ----  |      |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |       |      |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |       |      |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |       |      |
| Sum of PFAS   | ----               | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | ----              | ----  |      |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | ----              | ----  |      |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | ----              | ----  |      |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |       |      |
| 13C4-PFOS   | ----               | 0.02 | %    | 85.1              | 87.2              | 88.2              | ----              | ----  |      |
| 13C8-PFOA   | ----               | 0.02 | %    | 92.5              | 94.5              | 95.3              | ----              | ----  |      |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)           |            |      |      | Sample ID         | 0927_QC500_230317 | 0927_QC501_230317 | ----  | ----  | ---- |
|--|------------|------|------|-------------------|-------------------|-------------------|-------|-------|------|
| Sampling date / time                           |            |      |      | 17-Mar-2023 12:08 | 17-Mar-2023 12:08 | ----              | ----  | ----  |      |
| Compound                                       | CAS Number | LOR  | Unit | EM2304822-035     | EM2304822-036     | -----             | ----- | ----- |      |
|  |            |      |      | Result            | Result            | ----              | ----  | ----  |      |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |       |       |      |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | <0.01             | <0.01             | ----              | ----  | ----  |      |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | <0.01             | <0.01             | ----              | ----  | ----  |      |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |       |       |      |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | ----              | ----  | ----  |      |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01             | <0.01             | ----              | ----  | ----  |      |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |       |       |      |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)                      |                    |      |      | Sample ID         | 0927_QC500_230317 | 0927_QC501_230317 | ----  | ----  | ---- |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------|-------|------|
| Sampling date / time                                      |                    |      |      | 17-Mar-2023 12:08 | 17-Mar-2023 12:08 | ----              | ----  | ----  |      |
| Compound  | CAS Number         | LOR  | Unit | EM2304822-035     | EM2304822-036     | -----             | ----- | ----- |      |
|   |                    |      |      | Result            | Result            | ----              | ----  | ----  |      |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |       |       |      |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |       |       |      |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |       |       |      |
| Sum of PFAS   | ----               | 0.01 | µg/L | <0.01             | <0.01             | ----              | ----  | ----  |      |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <0.01             | <0.01             | ----              | ----  | ----  |      |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <0.01             | <0.01             | ----              | ----  | ----  |      |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |       |       |      |
| 13C4-PFOS   | ----               | 0.02 | %    | 79.1              | 80.2              | ----              | ----  | ----  |      |
| 13C8-PFOA   | ----               | 0.02 | %    | 93.2              | 92.2              | ----              | ----  | ----  |      |



### Surrogate Control Limits

| Sub-Matrix: GROUNDWATER       |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |

| Sub-Matrix: RINSATE           |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |

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



QUALITY CONTROL REPORT

Work Order : EM2304822

Page : 1 of 11

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Contact : [REDACTED]

Address : LEVEL 21 28 FRESHWATER PLACE  
SOUTHBANK VIC, AUSTRALIA 3006

Address : 4 Westall Rd Springvale VIC Australia 3171

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Telephone : +6138549 9609

Project : VIC\_0927\_PFASOMP

Date Samples Received : 17-Mar-2023

Order number : -

Date Analysis Commenced : 21-Mar-2023

C-O-C number : 49731

Issue Date : 23-Mar-2023

Sampler : [REDACTED]

Site : GW - ONSITE

Quote number : SY/139/19\_Laverton

No. of samples received : 36

No. of samples analysed : 36



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

This Quality Control Report contains the following information:

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

Signatories

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

| Signatories | Position               | Accreditation Category              |
|-------------|------------------------|-------------------------------------|
| [REDACTED]  | Senior Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

|  |                   |  |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-------------------|--|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID         | Method: Compound                               | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4941684)</b> |                   |  |            |                                   |      |                 |                  |         |                    |
| EM2304822-003  | 0927_MW105_230316 | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 113             | 133              | 16.4    | 0% - 20%           |
|  |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 69.8            | 73.6             | 5.3     | 0% - 20%           |
|  |                   | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | 15.5            | 16.8             | 8.5     | 0% - 20%           |
|  |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | 17.4            | 20.3             | 15.5    | 0% - 20%           |
|  |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.02                              | µg/L | 3.76            | 4.37             | 15.2    | 0% - 20%           |
|  |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| EM2304822-004  | 0927_MW107_230316 | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 4.36            | 4.54             | 4.1     | 0% - 20%           |
|  |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 0.42            | 0.43             | 2.9     | 0% - 20%           |
|  |                   | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | 0.64            | 0.61             | 4.5     | 0% - 20%           |
|  |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | 0.76            | 0.76             | 0.0     | 0% - 20%           |
|  |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.02                              | µg/L | 0.15            | 0.16             | 6.8     | No Limit           |
|  |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4941687)</b> |                   |  |            |                                   |      |                 |                  |         |                    |
| EM2304822-009  | 0927_MW118_230316 | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 30.8            | 31.4             | 1.7     | 0% - 20%           |
|  |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 21.1            | 23.4             | 10.2    | 0% - 20%           |
|  |                   | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | 4.44            | 4.47             | 0.5     | 0% - 20%           |
|  |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | 6.14            | 6.70             | 8.8     | 0% - 20%           |
|  |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.02                              | µg/L | 1.88            | 1.96             | 4.2     | 0% - 20%           |
|  |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| EM2304822-023  | 0927_MW207_230316 | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 10.0            | 10.8             | 7.3     | 0% - 20%           |
|  |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 11.3            | 10.7             | 5.7     | 0% - 20%           |
|  |                   | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | 0.86            | 0.88             | 2.0     | 0% - 20%           |
|  |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | 1.10            | 1.17             | 6.0     | 0% - 20%           |
|  |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.02                              | µg/L | 0.73            | 0.73             | 0.0     | 0% - 20%           |



Sub-Matrix: **WATER**

|  |                   |  |                   | Laboratory Duplicate (DUP) Report     |          |                 |                  |         |                    |
|--|-------------------|--|-------------------|---------------------------------------|----------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID         | Method: Compound                             | CAS Number        | LOR                                   | Unit     | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4941687) - continued</b> |                   |  |                   |                                       |          |                 |                  |         |                    |
| EM2304822-023  | 0927_MW207_230316 | EP231X: Perfluorodecane sulfonic acid (PFDS) | 335-77-3          | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4941684)</b>           |                   |  |                   |                                       |          |                 |                  |         |                    |
| EM2304822-003  | 0927_MW105_230316 | EP231X: Perfluorooctanoic acid (PFOA)        | 335-67-1          | 0.01                                  | µg/L     | 4.04            | 4.48             | 10.3    | 0% - 20%           |
|  |                   | EP231X: Perfluoropentanoic acid (PFPeA)      | 2706-90-3         | 0.02                                  | µg/L     | 7.88            | 8.33             | 5.6     | 0% - 20%           |
|  |                   | EP231X: Perfluorohexanoic acid (PFHxA)       | 307-24-4          | 0.02                                  | µg/L     | 51.6            | 56.0             | 8.1     | 0% - 20%           |
|  |                   | EP231X: Perfluoroheptanoic acid (PFHpA)      | 375-85-9          | 0.02                                  | µg/L     | 2.86            | 3.32             | 14.6    | 0% - 20%           |
|  |                   | EP231X: Perfluorononanoic acid (PFNA)        | 375-95-1          | 0.02                                  | µg/L     | 0.02            | 0.03             | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorodecanoic acid (PFDA)        | 335-76-2          | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)    | 2058-94-8         | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorododecanoic acid (PFDoDA)    | 307-55-1          | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)   | 72629-94-8        | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotetradecanoic acid (PFTeDA) | 376-06-7          | 0.05                                  | µg/L     | <0.05           | <0.05            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorobutanoic acid (PFBA)        | 375-22-4          | 0.1                                   | µg/L     | 1.3             | 1.6              | 15.4    | 0% - 50%           |
|  |                   | EM2304822-004                                | 0927_MW107_230316 | EP231X: Perfluorooctanoic acid (PFOA) | 335-67-1 | 0.01            | µg/L             | 0.17    | 0.17               |
| EP231X: Perfluoropentanoic acid (PFPeA)                                    | 2706-90-3         |  |                   | 0.02                                  | µg/L     | 0.20            | 0.21             | 0.0     | 0% - 50%           |
| EP231X: Perfluorohexanoic acid (PFHxA)                                     | 307-24-4          |  |                   | 0.02                                  | µg/L     | 1.08            | 1.09             | 0.9     | 0% - 20%           |
| EP231X: Perfluoroheptanoic acid (PFHpA)                                    | 375-85-9          |  |                   | 0.02                                  | µg/L     | 0.14            | 0.13             | 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           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4941687)</b>           |                   |  |                   |                                       |          |                 |                  |         |                    |
| EM2304822-009  | 0927_MW118_230316 | EP231X: Perfluorooctanoic acid (PFOA)        | 335-67-1          | 0.01                                  | µg/L     | 1.43            | 1.47             | 2.5     | 0% - 20%           |
|  |                   | EP231X: Perfluoropentanoic acid (PFPeA)      | 2706-90-3         | 0.02                                  | µg/L     | 1.30            | 1.34             | 3.2     | 0% - 20%           |
|  |                   | EP231X: Perfluorohexanoic acid (PFHxA)       | 307-24-4          | 0.02                                  | µg/L     | 6.29            | 6.56             | 4.2     | 0% - 20%           |
|  |                   | EP231X: Perfluoroheptanoic acid (PFHpA)      | 375-85-9          | 0.02                                  | µg/L     | 0.72            | 0.73             | 1.9     | 0% - 20%           |
|  |                   | EP231X: Perfluorononanoic acid (PFNA)        | 375-95-1          | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorodecanoic acid (PFDA)        | 335-76-2          | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)    | 2058-94-8         | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorododecanoic acid (PFDoDA)    | 307-55-1          | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)   | 72629-94-8        | 0.02                                  | µg/L     | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotetradecanoic acid (PFTeDA) | 376-06-7          | 0.05                                  | µg/L     | <0.05           | <0.05            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorobutanoic acid (PFBA)        | 375-22-4          | 0.1                                   | µg/L     | 0.4             | 0.4              | 0.0     | No Limit           |
|  |                   | EM2304822-023                                | 0927_MW207_230316 | EP231X: Perfluorooctanoic acid (PFOA) | 335-67-1 | 0.01            | µg/L             | 0.50    | 0.51               |
| EP231X: Perfluoropentanoic acid (PFPeA)                                    | 2706-90-3         |  |                   | 0.02                                  | µg/L     | 0.32            | 0.31             | 3.3     | 0% - 50%           |
| EP231X: Perfluorohexanoic acid (PFHxA)                                     | 307-24-4          |  |                   | 0.02                                  | µg/L     | 1.68            | 1.67             | 0.0     | 0% - 20%           |
| EP231X: Perfluoroheptanoic acid (PFHpA)                                    | 375-85-9          |  |                   | 0.02                                  | µg/L     | 0.22            | 0.22             | 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 (%) |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4941687) - continued</b> |                   |   |            |                                   |      |                 |                  |         |                    |
| EM2304822-023  | 0927_MW207_230316 | 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           |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4941684)</b>                 |                   |   |            |                                   |      |                 |                  |         |                    |
| EM2304822-003  | 0927_MW105_230316 | 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           |
| EM2304822-004  | 0927_MW107_230316 | 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           |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4941687)</b>                 |                   |   |            |                                   |      |                 |                  |         |                    |
| EM2304822-009  | 0927_MW118_230316 | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6   | 0.02                              | µg/L | 0.03            | 0.02             | 0.0     | No Limit           |
|  |                   | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |



Sub-Matrix: **WATER**

|  |                   |   |             | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-------------------|---|-------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID         | Method: Compound  | CAS Number  | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4941687) - continued</b> |                   |   |             |                                   |      |                 |                  |         |                    |
| EM2304822-009  | 0927_MW118_230316 | 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           |
| EM2304822-023  | 0927_MW207_230316 | 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           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4941684)</b>      |                   |   |             |                                   |      |                 |                  |         |                    |
| EM2304822-003  | 0927_MW105_230316 | 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           |
| EM2304822-004  | 0927_MW107_230316 | 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           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4941687)</b>      |                   |   |             |                                   |      |                 |                  |         |                    |
| EM2304822-009  | 0927_MW118_230316 | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |



| Sub-Matrix: WATER   |                   |   |                    | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|---|-------------------|---|--------------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID  | Sample ID         | Method: Compound                                    | CAS Number         | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4941687) - continued</b> |                   |   |                    |                                   |      |                 |                  |         |                    |
| EM2304822-009   | 0927_MW118_230316 | 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           |
| EM2304822-023   | 0927_MW207_230316 | 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           |
| <b>EP231P: PFAS Sums (QC Lot: 4941684)</b>                                      |                   |   |                    |                                   |      |                 |                  |         |                    |
| EM2304822-003   | 0927_MW105_230316 | EP231X: Sum of PFAS                                 | ----               | 0.01                              | µg/L | 290             | 326              | 11.5    | 0% - 20%           |
|   |                   | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 183             | 207              | 12.2    | 0% - 20%           |
|   |                   | EP231X: Sum of PFAS (WA DER List)                   | ----               | 0.01                              | µg/L | 266             | 297              | 11.1    | 0% - 20%           |
| EM2304822-004   | 0927_MW107_230316 | EP231X: Sum of PFAS                                 | ----               | 0.01                              | µg/L | 7.92            | 8.10             | 2.2     | 0% - 20%           |
|   |                   | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 4.78            | 4.97             | 3.9     | 0% - 20%           |
|   |                   | EP231X: Sum of PFAS (WA DER List)                   | ----               | 0.01                              | µg/L | 7.01            | 7.18             | 2.4     | 0% - 20%           |
| <b>EP231P: PFAS Sums (QC Lot: 4941687)</b>                                      |                   |   |                    |                                   |      |                 |                  |         |                    |
| EM2304822-009   | 0927_MW118_230316 | EP231X: Sum of PFAS                                 | ----               | 0.01                              | µg/L | 74.5            | 78.4             | 5.1     | 0% - 20%           |
|   |                   | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 51.9            | 54.8             | 5.4     | 0% - 20%           |
|   |                   | EP231X: Sum of PFAS (WA DER List)                   | ----               | 0.01                              | µg/L | 66.5            | 69.8             | 4.8     | 0% - 20%           |
| EM2304822-023   | 0927_MW207_230316 | EP231X: Sum of PFAS                                 | ----               | 0.01                              | µg/L | 26.8            | 27.1             | 1.0     | 0% - 20%           |
|   |                   | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 21.3            | 21.5             | 0.9     | 0% - 20%           |
|   |                   | EP231X: Sum of PFAS (WA DER List)                   | ----               | 0.01                              | µg/L | 25.0            | 25.2             | 0.8     | 0% - 20%           |



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

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

Sub-Matrix: **WATER**

| Method: Compound  | CAS Number | LOR  | Unit | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |      |                       |  |
|---|------------|------|------|-----------------------------|---------------------------------------|--------------------|------|-----------------------|--|
|   |            |      |      | Result                      | Spike<br>Concentration                | Spike Recovery (%) |      | Acceptable Limits (%) |  |
|   |            |      |      |                             |                                       | LCS                | Low  | High                  |  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4941684)</b>   |            |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 95.1               | 72.0 | 130                   |  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 95.4               | 71.0 | 127                   |  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 91.3               | 68.0 | 131                   |  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 97.9               | 69.0 | 134                   |  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 83.6               | 65.0 | 140                   |  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 87.4               | 53.0 | 142                   |  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4941687)</b>   |            |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 94.6               | 72.0 | 130                   |  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 89.6               | 71.0 | 127                   |  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 89.6               | 68.0 | 131                   |  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 100                | 69.0 | 134                   |  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 94.6               | 65.0 | 140                   |  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 90.0               | 53.0 | 142                   |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4941684)</b> |            |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutanoic acid (PFBA)                           | 375-22-4   | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 97.1               | 73.0 | 129                   |  |
| EP231X: Perfluoropentanoic acid (PFPeA)                         | 2706-90-3  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.3               | 72.0 | 129                   |  |
| EP231X: Perfluorohexanoic acid (PFHxA)                          | 307-24-4   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 97.1               | 72.0 | 129                   |  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                         | 375-85-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.6               | 72.0 | 130                   |  |
| EP231X: Perfluorooctanoic acid (PFOA)                           | 335-67-1   | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 90.7               | 71.0 | 133                   |  |
| EP231X: Perfluorononanoic acid (PFNA)                           | 375-95-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 85.4               | 69.0 | 130                   |  |
| EP231X: Perfluorodecanoic acid (PFDA)                           | 335-76-2   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.0               | 71.0 | 129                   |  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                       | 2058-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 107                | 69.0 | 133                   |  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                       | 307-55-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 98.5               | 72.0 | 134                   |  |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                      | 72629-94-8 | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 85.8               | 65.0 | 144                   |  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                    | 376-06-7   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 102                | 71.0 | 132                   |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4941687)</b> |            |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutanoic acid (PFBA)                           | 375-22-4   | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 116                | 73.0 | 129                   |  |
| EP231X: Perfluoropentanoic acid (PFPeA)                         | 2706-90-3  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 86.2               | 72.0 | 129                   |  |
| EP231X: Perfluorohexanoic acid (PFHxA)                          | 307-24-4   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.9               | 72.0 | 129                   |  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                         | 375-85-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.1               | 72.0 | 130                   |  |
| EP231X: Perfluorooctanoic acid (PFOA)                           | 335-67-1   | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 93.2               | 71.0 | 133                   |  |
| EP231X: Perfluorononanoic acid (PFNA)                           | 375-95-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.0               | 69.0 | 130                   |  |
| EP231X: Perfluorodecanoic acid (PFDA)                           | 335-76-2   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.1               | 71.0 | 129                   |  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                       | 2058-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 98.1               | 69.0 | 133                   |  |



Sub-Matrix: WATER

| Method: Compound  | CAS Number  | LOR  | Unit | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |      |                       |  |
|---|-------------|------|------|-----------------------------|---------------------------------------|--------------------|------|-----------------------|--|
|   |             |      |      | Result                      | Spike                                 | Spike Recovery (%) |      | Acceptable Limits (%) |  |
|   |             |      |      |                             | Concentration                         | LCS                | Low  | High                  |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4941687) - continued</b> |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                                   | 307-55-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 106                | 72.0 | 134                   |  |
| EP231X: Perfluorotridecanoic acid (PFTTrDA)                                 | 72629-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.0               | 65.0 | 144                   |  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                                | 376-06-7    | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 101                | 71.0 | 132                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4941684)</b>                 |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                                  | 754-91-6    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.0               | 67.0 | 137                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)                       | 31506-32-8  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 106                | 68.0 | 141                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)                        | 4151-50-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 92.0               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)                | 24448-09-7  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 94.9               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)                 | 1691-99-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 93.2               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)           | 2355-31-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.2               | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)            | 2991-50-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.4               | 61.0 | 135                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4941687)</b>                 |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                                  | 754-91-6    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 98.7               | 67.0 | 137                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)                       | 31506-32-8  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 110                | 68.0 | 141                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)                        | 4151-50-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 99.1               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)                | 24448-09-7  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 89.4               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)                 | 1691-99-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 97.1               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)           | 2355-31-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 105                | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)            | 2991-50-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 92.7               | 61.0 | 135                   |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4941684)</b>          |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                           | 757124-72-4 | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 95.6               | 63.0 | 143                   |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                           | 27619-97-2  | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 99.0               | 64.0 | 140                   |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                           | 39108-34-4  | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 104                | 67.0 | 138                   |  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                         | 120226-60-0 | 0.05 | µg/L | <0.05                       | 0.242 µg/L                            | 71.6               | 70.0 | 130                   |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4941687)</b>          |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                           | 757124-72-4 | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 98.5               | 63.0 | 143                   |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                           | 27619-97-2  | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 94.6               | 64.0 | 140                   |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                           | 39108-34-4  | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 95.6               | 67.0 | 138                   |  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                         | 120226-60-0 | 0.05 | µg/L | <0.05                       | 0.242 µg/L                            | 73.1               | 70.0 | 130                   |  |
| <b>EP231P: PFAS Sums (QCLot: 4941684)</b>                                   |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Sum of PFAS   | ----        | 0.01 | µg/L | <0.01                       | ----                                  | ----               | ---- | ----                  |  |



Sub-Matrix: WATER

| Method: Compound                                      | CAS Number             | LOR  | Unit | Method Blank (MB) Report<br>Result | Laboratory Control Spike (LCS) Report |                    |                       |      |
|---|------------------------|------|------|------------------------------------|---------------------------------------|--------------------|-----------------------|------|
|   |                        |      |      |                                    | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |      |
|   |                        |      |      |                                    |                                       | LCS                | Low                   | High |
| <b>EP231P: PFAS Sums (QCLot: 4941684) - continued</b> |                        |      |      |                                    |                                       |                    |                       |      |
| EP231X: Sum of PFHxS and PFOS                         | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFAS (WA DER List)                     | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |
| <b>EP231P: PFAS Sums (QCLot: 4941687)</b>             |                        |      |      |                                    |                                       |                    |                       |      |
| EP231X: Sum of PFAS                                   | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFHxS and PFOS                         | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFAS (WA DER List)                     | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |

### Matrix Spike (MS) Report

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

Sub-Matrix: WATER

| Laboratory sample ID  | Sample ID         | Method: Compound                               | CAS Number | Matrix Spike (MS) Report |                   |                       |      |
|---|-------------------|--|------------|--------------------------|-------------------|-----------------------|------|
|   |                   |  |            | Spike Concentration      | Spike Recovery(%) | Acceptable Limits (%) |      |
|   |                   |  |            |                          | MS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4941684)</b> |                   |  |            |                          |                   |                       |      |
| EM2304822-003   | 0927_MW105_230316 | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.222 µg/L               | # Not Determined  | 72.0                  | 130  |
|   |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.235 µg/L               | # Not Determined  | 71.0                  | 127  |
|   |                   | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.228 µg/L               | # Not Determined  | 68.0                  | 131  |
|   |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.238 µg/L               | # Not Determined  | 69.0                  | 134  |
|   |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.232 µg/L               | # Not Determined  | 65.0                  | 140  |
|   |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.241 µg/L               | 107               | 53.0                  | 142  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4941687)</b> |                   |  |            |                          |                   |                       |      |
| EM2304822-009   | 0927_MW118_230316 | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.222 µg/L               | # Not Determined  | 72.0                  | 130  |
|   |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.235 µg/L               | # Not Determined  | 71.0                  | 127  |
|   |                   | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.228 µg/L               | # Not Determined  | 68.0                  | 131  |
|   |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.238 µg/L               | # Not Determined  | 69.0                  | 134  |
|   |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.232 µg/L               | # Not Determined  | 65.0                  | 140  |



Sub-Matrix: WATER

|   |                   |   |            | Matrix Spike (MS) Report |                  |                       |      |
|---|-------------------|---|------------|--------------------------|------------------|-----------------------|------|
|   |                   |   |            | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID         | Method: Compound                                      | CAS Number | Concentration            | MS               | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4941687) - continued</b> |                   |   |            |                          |                  |                       |      |
| EM2304822-009   | 0927_MW118_230316 | EP231X: Perfluorodecane sulfonic acid (PFDS)          | 335-77-3   | 0.241 µg/L               | 79.1             | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4941684)</b>           |                   |   |            |                          |                  |                       |      |
| EM2304822-003   | 0927_MW105_230316 | EP231X: Perfluorobutanoic acid (PFBA)                 | 375-22-4   | 1.25 µg/L                | # 25.2           | 73.0                  | 129  |
|   |                   | EP231X: Perfluoropentanoic acid (PFPeA)               | 2706-90-3  | 0.25 µg/L                | # Not Determined | 72.0                  | 129  |
|   |                   | EP231X: Perfluorohexanoic acid (PFHxA)                | 307-24-4   | 0.25 µg/L                | # Not Determined | 72.0                  | 129  |
|   |                   | EP231X: Perfluoroheptanoic acid (PFHpA)               | 375-85-9   | 0.25 µg/L                | # Not Determined | 72.0                  | 130  |
|   |                   | EP231X: Perfluorooctanoic acid (PFOA)                 | 335-67-1   | 0.25 µg/L                | # Not Determined | 71.0                  | 133  |
|   |                   | EP231X: Perfluorononanoic acid (PFNA)                 | 375-95-1   | 0.25 µg/L                | 69.5             | 69.0                  | 130  |
|   |                   | EP231X: Perfluorodecanoic acid (PFDA)                 | 335-76-2   | 0.25 µg/L                | 79.0             | 71.0                  | 129  |
|   |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)             | 2058-94-8  | 0.25 µg/L                | # 65.4           | 69.0                  | 133  |
|   |                   | EP231X: Perfluorododecanoic acid (PFDoDA)             | 307-55-1   | 0.25 µg/L                | # 69.4           | 72.0                  | 134  |
|   |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)            | 72629-94-8 | 0.25 µg/L                | # 52.8           | 65.0                  | 144  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                              | 376-06-7          | 0.625 µg/L  | # 67.4     | 71.0                     | 132              |                       |      |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4941687)</b>           |                   |   |            |                          |                  |                       |      |
| EM2304822-009   | 0927_MW118_230316 | EP231X: Perfluorobutanoic acid (PFBA)                 | 375-22-4   | 1.25 µg/L                | # 67.8           | 73.0                  | 129  |
|   |                   | EP231X: Perfluoropentanoic acid (PFPeA)               | 2706-90-3  | 0.25 µg/L                | # Not Determined | 72.0                  | 129  |
|   |                   | EP231X: Perfluorohexanoic acid (PFHxA)                | 307-24-4   | 0.25 µg/L                | # Not Determined | 72.0                  | 129  |
|   |                   | EP231X: Perfluoroheptanoic acid (PFHpA)               | 375-85-9   | 0.25 µg/L                | # Not Determined | 72.0                  | 130  |
|   |                   | EP231X: Perfluorooctanoic acid (PFOA)                 | 335-67-1   | 0.25 µg/L                | # Not Determined | 71.0                  | 133  |
|   |                   | EP231X: Perfluorononanoic acid (PFNA)                 | 375-95-1   | 0.25 µg/L                | 94.0             | 69.0                  | 130  |
|   |                   | EP231X: Perfluorodecanoic acid (PFDA)                 | 335-76-2   | 0.25 µg/L                | 82.9             | 71.0                  | 129  |
|   |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)             | 2058-94-8  | 0.25 µg/L                | 84.8             | 69.0                  | 133  |
|   |                   | EP231X: Perfluorododecanoic acid (PFDoDA)             | 307-55-1   | 0.25 µg/L                | 90.3             | 72.0                  | 134  |
|   |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)            | 72629-94-8 | 0.25 µg/L                | 80.6             | 65.0                  | 144  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                              | 376-06-7          | 0.625 µg/L  | 78.5       | 71.0                     | 132              |                       |      |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4941684)</b>               |                   |   |            |                          |                  |                       |      |
| EM2304822-003   | 0927_MW105_230316 | EP231X: Perfluorooctane sulfonamide (FOSA)            | 754-91-6   | 0.25 µg/L                | 70.5             | 67.0                  | 137  |
|   |                   | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA) | 31506-32-8 | 0.625 µg/L               | # 59.0           | 68.0                  | 141  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)  | 4151-50-2  | 0.625 µg/L               | # 50.2           | 70.0                  | 130  |



Sub-Matrix: WATER

|   |                   |   |             | Matrix Spike (MS) Report |                  |                       |      |
|---|-------------------|---|-------------|--------------------------|------------------|-----------------------|------|
|   |                   |   |             | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID         | Method: Compound  | CAS Number  | Concentration            | MS               | Low                   | High |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4941684) - continued</b> |                   |   |             |                          |                  |                       |      |
| EM2304822-003   | 0927_MW105_230316 | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | # 62.2           | 70.0                  | 130  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | # 64.6           | 70.0                  | 130  |
|   |                   | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 68.3             | 65.0                  | 136  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 62.0             | 61.0                  | 135  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4941687)</b>             |                   |   |             |                          |                  |                       |      |
| EM2304822-009   | 0927_MW118_230316 | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6    | 0.25 µg/L                | 70.4             | 67.0                  | 137  |
|   |                   | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.625 µg/L               | 73.3             | 68.0                  | 141  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.625 µg/L               | 79.0             | 70.0                  | 130  |
|   |                   | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 76.6             | 70.0                  | 130  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 79.7             | 70.0                  | 130  |
|   |                   | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 82.5             | 65.0                  | 136  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 80.3             | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4941684)</b>      |                   |   |             |                          |                  |                       |      |
| EM2304822-003   | 0927_MW105_230316 | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 78.2             | 63.0                  | 143  |
|   |                   | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 85.9             | 64.0                  | 140  |
|   |                   | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 80.6             | 67.0                  | 138  |
|   |                   | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | # 55.2           | 70.0                  | 130  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4941687)</b>      |                   |   |             |                          |                  |                       |      |
| EM2304822-009   | 0927_MW118_230316 | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 93.2             | 63.0                  | 143  |
|   |                   | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 86.8             | 64.0                  | 140  |
|   |                   | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 82.9             | 67.0                  | 138  |
|   |                   | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | # 58.4           | 70.0                  | 130  |



## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2304822                 | Page                    | : 1 of 10                          |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : +6138549 9609                    |
| Project      | : VIC_0927_PFASOMP          | Date Samples Received   | : 17-Mar-2023                      |
| Site         | : GW - ONSITE               | Issue Date              | : 23-Mar-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 36                               |
| Order number | : -                         | No. of samples analysed | : 36                               |

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.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



**Outliers : Quality Control Samples**

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: WATER

| Compound Group Name                     | Laboratory Sample ID | Client Sample ID  | Analyte                                | CAS Number | Data           | Limits    | Comment   |
|---|----------------------|-------------------|--|------------|----------------|-----------|---|
| <b>Matrix Spike (MS) Recoveries</b>     |                      |                   |  |            |                |           |   |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2304822--003       | 0927_MW105_230316 | Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2304822--009       | 0927_MW118_230316 | Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2304822--003       | 0927_MW105_230316 | Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2304822--009       | 0927_MW118_230316 | Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2304822--003       | 0927_MW105_230316 | 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   | EM2304822--009       | 0927_MW118_230316 | 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   | EM2304822--003       | 0927_MW105_230316 | Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2304822--009       | 0927_MW118_230316 | Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2304822--003       | 0927_MW105_230316 | Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2304822--009       | 0927_MW118_230316 | Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2304822--003       | 0927_MW105_230316 | Perfluorobutanoic acid (PFBA)          | 375-22-4   | 25.2 %         | 73.0-129% | Recovery less than lower data quality objective                                       |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2304822--009       | 0927_MW118_230316 | Perfluorobutanoic acid (PFBA)          | 375-22-4   | 67.8 %         | 73.0-129% | Recovery less than lower data quality objective                                       |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2304822--003       | 0927_MW105_230316 | Perfluoropentanoic acid (PFPeA)        | 2706-90-3  | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2304822--009       | 0927_MW118_230316 | Perfluoropentanoic acid (PFPeA)        | 2706-90-3  | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |



Matrix: WATER

| Compound Group Name                             | Laboratory Sample ID | Client Sample ID  | Analyte  | CAS Number | Data           | Limits    | Comment   |
|---|----------------------|-------------------|--|------------|----------------|-----------|---|
| <b>Matrix Spike (MS) Recoveries - Continued</b> |                      |                   |  |            |                |           |   |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--003       | 0927_MW105_230316 | Perfluorohexanoic acid (PFHxA)                       | 307-24-4   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--009       | 0927_MW118_230316 | Perfluorohexanoic acid (PFHxA)                       | 307-24-4   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--003       | 0927_MW105_230316 | Perfluoroheptanoic acid (PFHpA)                      | 375-85-9   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--009       | 0927_MW118_230316 | Perfluoroheptanoic acid (PFHpA)                      | 375-85-9   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--003       | 0927_MW105_230316 | Perfluorooctanoic acid (PFOA)                        | 335-67-1   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--009       | 0927_MW118_230316 | Perfluorooctanoic acid (PFOA)                        | 335-67-1   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--003       | 0927_MW105_230316 | Perfluoroundecanoic acid (PFUnDA)                    | 2058-94-8  | 65.4 %         | 69.0-133% | Recovery less than lower data quality objective                                       |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--003       | 0927_MW105_230316 | Perfluorododecanoic acid (PFDoDA)                    | 307-55-1   | 69.4 %         | 72.0-134% | Recovery less than lower data quality objective                                       |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--003       | 0927_MW105_230316 | Perfluorotridecanoic acid (PFTrDA)                   | 72629-94-8 | 52.8 %         | 65.0-144% | Recovery less than lower data quality objective                                       |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2304822--003       | 0927_MW105_230316 | Perfluorotetradecanoic acid (PFTeDA)                 | 376-06-7   | 67.4 %         | 71.0-132% | Recovery less than lower data quality objective                                       |
| EP231C: Perfluoroalkyl Sulfonamides             | EM2304822--003       | 0927_MW105_230316 | N-Methyl perfluorooctane sulfonamide (MeFOSA)        | 31506-32-8 | 59.0 %         | 68.0-141% | Recovery less than lower data quality objective                                       |
| EP231C: Perfluoroalkyl Sulfonamides             | EM2304822--003       | 0927_MW105_230316 | N-Ethyl perfluorooctane sulfonamide (EtFOSA)         | 4151-50-2  | 50.2 %         | 70.0-130% | Recovery less than lower data quality objective                                       |
| EP231C: Perfluoroalkyl Sulfonamides             | EM2304822--003       | 0927_MW105_230316 | N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE) | 24448-09-7 | 62.2 %         | 70.0-130% | Recovery less than lower data quality objective                                       |
| EP231C: Perfluoroalkyl Sulfonamides             | EM2304822--003       | 0927_MW105_230316 | N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)  | 1691-99-2  | 64.6 %         | 70.0-130% | Recovery less than lower data quality objective                                       |





Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)   | Sample Date  | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids - Continued</b>  |  |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW109_230317,<br>0927_MW217_230317,<br>0927_QC303_230317,<br>0927_QC501_230317   | 0927_MW152_230317,<br>0927_QC302_230317,<br>0927_QC500_230317,   | 17-Mar-2023              | 21-Mar-2023        | 13-Sep-2023 | ✓             | 22-Mar-2023      | 13-Sep-2023 | ✓ |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>  |  |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW102_230316,<br>0927_MW105_230316,<br>0927_MW110_230316,<br>0927_MW117_230316,<br>0927_MW120_230316,<br>0927_MW139_230316,<br>0927_MW155_230316,<br>0927_MW185_230316,<br>0927_MW144_230316,<br>0927_MW182_230316,<br>0927_MW207_230316,<br>0927_QC100_230316,<br>0927_QC102_230316,<br>0927_QC103_230316,<br>0927_QC301_230316 | 0927_MW103_230316,<br>0927_MW107_230316,<br>0927_MW115_230316,<br>0927_MW118_230316,<br>0927_MW138_230316,<br>0927_MW140_230316,<br>0927_MW163_230316,<br>0927_MW192_230316,<br>0927_MW146_230316,<br>0927_MW200_230316,<br>0927_MW208_230316,<br>0927_QC101_230316,<br>0927_MW211_230316,<br>0927_QC300_230316, | 16-Mar-2023              | 21-Mar-2023        | 12-Sep-2023 | ✓             | 22-Mar-2023      | 12-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW109_230317,<br>0927_MW217_230317,<br>0927_QC303_230317,<br>0927_QC501_230317   | 0927_MW152_230317,<br>0927_QC302_230317,<br>0927_QC500_230317,   | 17-Mar-2023              | 21-Mar-2023        | 13-Sep-2023 | ✓             | 22-Mar-2023      | 13-Sep-2023 | ✓ |



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)   | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                    |             |   |
|---|---|--------------------------|--------------------|-------------|---------------|--------------------|-------------|---|
|   |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis   | Evaluation  |   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>  |   |                          |                    |             |               |                    |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>  |   |                          |                    |             |               |                    |             |   |
| 0927_MW102_230316,<br>0927_MW105_230316,<br>0927_MW110_230316,<br>0927_MW117_230316,<br>0927_MW120_230316,<br>0927_MW139_230316,<br>0927_MW155_230316,<br>0927_MW185_230316,<br>0927_MW144_230316,<br>0927_MW182_230316,<br>0927_MW207_230316,<br>0927_QC100_230316,<br>0927_QC102_230316,<br>0927_QC103_230316,<br>0927_QC301_230316 | 0927_MW103_230316,<br>0927_MW107_230316,<br>0927_MW115_230316,<br>0927_MW118_230316,<br>0927_MW138_230316,<br>0927_MW140_230316,<br>0927_MW163_230316,<br>0927_MW192_230316,<br>0927_MW146_230316,<br>0927_MW200_230316,<br>0927_MW208_230316,<br>0927_QC101_230316,<br>0927_MW211_230316,<br>0927_QC300_230316 | <b>16-Mar-2023</b>       | <b>21-Mar-2023</b> | 12-Sep-2023 | ✓             | <b>22-Mar-2023</b> | 12-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b>  |   |                          |                    |             |               |                    |             |   |
| 0927_MW109_230317,<br>0927_MW217_230317,<br>0927_QC303_230317,<br>0927_QC501_230317   | 0927_MW152_230317,<br>0927_QC302_230317,<br>0927_QC500_230317,  | <b>17-Mar-2023</b>       | <b>21-Mar-2023</b> | 13-Sep-2023 | ✓             | <b>22-Mar-2023</b> | 13-Sep-2023 | ✓ |



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)         | Sample Date        | Extraction / Preparation |                    |             | Analysis      |                    |             |   |
|---|--------------------|--------------------------|--------------------|-------------|---------------|--------------------|-------------|---|
|   |                    | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis   | Evaluation  |   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b> |                    |                          |                    |             |               |                    |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>                    |                    |                          |                    |             |               |                    |             |   |
| 0927_MW102_230316,                                | 0927_MW103_230316, | <b>16-Mar-2023</b>       | <b>21-Mar-2023</b> | 12-Sep-2023 | ✓             | <b>22-Mar-2023</b> | 12-Sep-2023 | ✓ |
| 0927_MW105_230316,                                | 0927_MW107_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW110_230316,                                | 0927_MW115_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW117_230316,                                | 0927_MW118_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW120_230316,                                | 0927_MW138_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW139_230316,                                | 0927_MW140_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW155_230316,                                | 0927_MW163_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW185_230316,                                | 0927_MW192_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW144_230316,                                | 0927_MW146_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW182_230316,                                | 0927_MW200_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW207_230316,                                | 0927_MW208_230316, |                          |                    |             |               |                    |             |   |
| 0927_QC100_230316,                                | 0927_QC101_230316, |                          |                    |             |               |                    |             |   |
| 0927_QC102_230316,                                | 0927_MW211_230316, |                          |                    |             |               |                    |             |   |
| 0927_QC103_230316,                                | 0927_QC300_230316, |                          |                    |             |               |                    |             |   |
| 0927_QC301_230316                                 |                    |                          |                    |             |               |                    |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>                    |                    |                          |                    |             |               |                    |             |   |
| 0927_MW109_230317,                                | 0927_MW152_230317, | <b>17-Mar-2023</b>       | <b>21-Mar-2023</b> | 13-Sep-2023 | ✓             | <b>22-Mar-2023</b> | 13-Sep-2023 | ✓ |
| 0927_MW217_230317,                                | 0927_QC302_230317, |                          |                    |             |               |                    |             |   |
| 0927_QC303_230317,                                | 0927_QC500_230317, |                          |                    |             |               |                    |             |   |
| 0927_QC501_230317                                 |                    |                          |                    |             |               |                    |             |   |



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s) | Sample Date        | Extraction / Preparation |                    |             | Analysis      |                    |             |   |
|---|--------------------|--------------------------|--------------------|-------------|---------------|--------------------|-------------|---|
|   |                    | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis   | Evaluation  |   |
| <b>EP231P: PFAS Sums</b>                  |                    |                          |                    |             |               |                    |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>            |                    |                          |                    |             |               |                    |             |   |
| 0927_MW102_230316,                        | 0927_MW103_230316, | <b>16-Mar-2023</b>       | <b>21-Mar-2023</b> | 12-Sep-2023 | ✓             | <b>22-Mar-2023</b> | 12-Sep-2023 | ✓ |
| 0927_MW105_230316,                        | 0927_MW107_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW110_230316,                        | 0927_MW115_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW117_230316,                        | 0927_MW118_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW120_230316,                        | 0927_MW138_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW139_230316,                        | 0927_MW140_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW155_230316,                        | 0927_MW163_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW185_230316,                        | 0927_MW192_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW144_230316,                        | 0927_MW146_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW182_230316,                        | 0927_MW200_230316, |                          |                    |             |               |                    |             |   |
| 0927_MW207_230316,                        | 0927_MW208_230316, |                          |                    |             |               |                    |             |   |
| 0927_QC100_230316,                        | 0927_QC101_230316, |                          |                    |             |               |                    |             |   |
| 0927_QC102_230316,                        | 0927_MW211_230316, |                          |                    |             |               |                    |             |   |
| 0927_QC103_230316,                        | 0927_QC300_230316, |                          |                    |             |               |                    |             |   |
| 0927_QC301_230316                         |                    |                          |                    |             |               |                    |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>            |                    |                          |                    |             |               |                    |             |   |
| 0927_MW109_230317,                        | 0927_MW152_230317, | <b>17-Mar-2023</b>       | <b>21-Mar-2023</b> | 13-Sep-2023 | ✓             | <b>22-Mar-2023</b> | 13-Sep-2023 | ✓ |
| 0927_MW217_230317,                        | 0927_QC302_230317, |                          |                    |             |               |                    |             |   |
| 0927_QC303_230317,                        | 0927_QC500_230317, |                          |                    |             |               |                    |             |   |
| 0927_QC501_230317                         |                    |                          |                    |             |               |                    |             |   |





## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 4     | 36      | 11.11    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 2     | 36      | 5.56     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 2     | 36      | 5.56     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 2     | 36      | 5.56     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |



## Brief Method Summaries

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

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Solid Phase Extraction (SPE) for PFAS in water       | ORG72         | WATER         | In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.  |

**CHAIN OF CUSTODY**  
 (ALS) COC#: 49995 ALS Laboratory: EM Melbourne

RELINQUISHED BY:  
 DATE TIME:

RECEIVED BY:  
 DATE TIME:

RELINQUISHED BY:  
 DATE TIME:

RECEIVED BY:  
 DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD  
 PROJECT: VIC\_0927\_PFASOMP  
 SITE: GW - onsite,2  
 ORDER NO:  
 PROJECT MANAGER:  
 PRIMARY SAMPLER:  
 EMAIL REPORTS TO:  
 EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days  
 Biohazard info:

CONTACT PH: SAMPLER MOBILE:  
 QUOTE NO: SY/139/19\_Laverton / EM2023MWHAUS000  
 2

**LABORATORY USE ONLY (Circle)**  
 Custody Seal intact? Yes No N/A  
 Free ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: C  
 Other comments:

| SAMPLE DETAILS |                   |             |                        |        |                      |         | ANALYSIS REQUIRED |                      |                        |
|----------------|-------------------|-------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| SAMPLE         | NAME              | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 001            | 0927_MW137_230322 |             | 22/03/2023<br>09:02 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |

Environmental Division  
 Melbourne  
 Work Order Reference  
**EM2305196**



Telephone : +61-3-8549 8600



**CHAIN OF CUSTODY**  
**(ALS)** COC#: 49995 ALS Laboratory: EM Melbourne

RELINQUISHED BY:  
  
DATE TIME:

RECEIVED BY:  
  
DATE TIME:

RELINQUISHED BY:  
  
DATE TIME:

RECEIVED BY:  
  
DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD  
 PROJECT: VIC\_0927\_PFASOMP  
 SITE: GW - onsite.2  
 ORDER NO:  
 PROJECT MANAGER:   
 PRIMARY SAMPLER:   
 EMAIL REPORTS TO:  
 EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days  
 Biohazard info:

CONTACT PH: SAMPLER MOBILE:  
 QUOTE NO: SY/139/19\_Laverton / EM2023MWHAUS000  
 2

**LABORATORY USE ONLY (Circle)**  
 Custody Seal intact? Yes No N/A  
 Free ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: C  
 Other comments:

| SAMPLE | SAMPLE NAME       | BOTTLE NAME    | VOLUME | BARCODE        | TYPE | FILTERED | REASON |
|--------|-------------------|----------------|--------|----------------|------|----------|--------|
| 001    | 0927_MW137_230322 | HDPE (no PTFE) | 20 mL  | 00350522083854 | Grey | No       |        |
| 001    | 0927_MW137_230322 | HDPE (no PTFE) | 20 mL  | 00350522083823 | Grey | No       |        |

**Total Bottle Count: ALS: 2, Non ALS: 0**



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM2305196

|              |   |              |   |
|--------------|---|--------------|---|
| Client       | : STANTEC AUSTRALIA PTY LTD                                     | Laboratory   | : Environmental Division Melbourne              |
| Contact      | : [REDACTED]  | Contact      | : [REDACTED]                                    |
| Address      | : LEVEL 21 28 FRESHWATER PLACE<br>SOUTHBANK VIC, AUSTRALIA 3006 | Address      | : 4 Westall Rd Springvale VIC Australia<br>3171 |
| E-mail       | : [REDACTED]  | E-mail       | : [REDACTED]                                    |
| Telephone    | : ----  | Telephone    | : +6138549 9609                                 |
| Facsimile    | : ----  | Facsimile    | : +61-3-8549 9626                               |
| Project      | : VIC_0927_PFASOMP  | Page         | : 1 of 3  |
| Order number | : -   | Quote number | : EM2023MWHHAUS0002<br>(SY/139/19_Laverton)     |
| C-O-C number | : 49995   | QC Level     | : NEPM 2013 B3 & ALS QC Standard                |
| Site         | : GW - onsite.2   |              |   |
| Sampler      | : [REDACTED]  |              |   |

Dates

|                           |                     |                          |                      |
|---------------------------|---------------------|--------------------------|----------------------|
| Date Samples Received     | : 23-Mar-2023 19:35 | Issue Date               | : 24-Mar-2023        |
| Client Requested Due Date | : 31-Mar-2023       | Scheduled Reporting Date | : <b>31-Mar-2023</b> |

Delivery Details

|                      |           |                                    |                       |
|----------------------|-----------|------------------------------------|-----------------------|
| Mode of Delivery     | : Carrier | Security Seal                      | : Not Available       |
| No. of coolers/boxes | : 1       | Temperature                        | : 4.1°C - Ice present |
| Receipt Detail       | :         | No. of samples received / analysed | : 1 / 1               |

General Comments

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



### Sample Container(s)/Preservation Non-Compliances

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

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

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

| Laboratory sample ID | Sampling date / time | Sample ID         | WATER - EP231X<br>PFAS - Full Suite (28 analytes) |
|----------------------|----------------------|-------------------|---|
| EM2305196-001        | 22-Mar-2023 09:02    | 0927_MW137_230322 | ✓   |

### Proactive Holding Time Report

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



## CERTIFICATE OF ANALYSIS

**Work Order** : **EM2305196**  
**Client** : **STANTEC AUSTRALIA PTY LTD**  
**Contact** : [REDACTED]  
**Address** : [REDACTED]  
  
**Telephone** : [REDACTED]  
**Project** : **VIC\_0927\_PFASOMP**  
**Order number** : -  
**C-O-C number** : **49995**  
**Sampler** : [REDACTED]  
**Site** : **GW - onsite.2**  
**Quote number** : **SY/139/19\_Laverton**  
**No. of samples received** : **1**  
**No. of samples analysed** : **1**

**Page** : 1 of 5  
**Laboratory** : Environmental Division Melbourne  
**Contact** : [REDACTED]  
**Address** : [REDACTED]  
  
**Telephone** : [REDACTED]  
**Date Samples Received** : **23-Mar-2023 19:35**  
**Date Analysis Commenced** : **27-Mar-2023**  
**Issue Date** : **28-Mar-2023 12:49**



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.

| <i>Signatories</i> | <i>Position</i>        | <i>Accreditation Category</i> |
|--------------------|------------------------|-------------------------------|
| [REDACTED]         | Senior Organic Chemist | [REDACTED]                    |





## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X: Poor matrix spike recovery for sample EM2305193-002 due to sample matrix interference.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

0927\_MW137\_230322

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----

|  |            |      | Sampling date / time | 22-Mar-2023 09:02 | ----  | ----  | ----  | ----  |
|--|------------|------|----------------------|-------------------|-------|-------|-------|-------|
| Compound                                       | CAS Number | LOR  | Unit                 | EM2305196-001     | ----- | ----- | ----- | ----- |
|  |            |      |                      | Result            | ----  | ----  | ----  | ----  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |                      |                   |       |       |       |       |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L                 | 0.09              | ----  | ----  | ----  | ----  |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L                 | 0.05              | ----  | ----  | ----  | ----  |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L                 | 0.30              | ----  | ----  | ----  | ----  |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L                 | 0.68              | ----  | ----  | ----  | ----  |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |                      |                   |       |       |       |       |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L                 | <0.1              | ----  | ----  | ----  | ----  |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L                 | 0.04              | ----  | ----  | ----  | ----  |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L                 | 0.10              | ----  | ----  | ----  | ----  |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L                 | 0.04              | ----  | ----  | ----  | ----  |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L                 | <0.05             | ----  | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |                      |                   |       |       |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L                 | <0.02             | ----  | ----  | ----  | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L                 | <0.05             | ----  | ----  | ----  | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L                 | <0.05             | ----  | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    | Sample ID            | 0927_MW137_230322 | ----          | ----  | ----  | ----  |
|---|--------------------|----------------------|-------------------|---------------|-------|-------|-------|
|   |                    | Sampling date / time | 22-Mar-2023 09:02 | ----          | ----  | ----  | ----  |
| Compound  | CAS Number         | LOR                  | Unit              | EM2305196-001 | ----- | ----- | ----- |
|   |                    |                      |                   | Result        | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |                      |                   |               |       |       |       |
| 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         | ----  | ----  | ----  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |                      |                   |               |       |       |       |
| 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         | ----  | ----  | ----  |
| <b>EP231P: PFAS Sums</b>                                  |                    |                      |                   |               |       |       |       |
| Sum of PFAS   | ----               | 0.01                 | µg/L              | <b>1.30</b>   | ----  | ----  | ----  |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01                 | µg/L              | <b>0.98</b>   | ----  | ----  | ----  |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01                 | µg/L              | <b>1.25</b>   | ----  | ----  | ----  |
| <b>EP231S: PFAS Surrogate</b>                             |                    |                      |                   |               |       |       |       |
| 13C4-PFOS   | ----               | 0.02                 | %                 | <b>93.4</b>   | ----  | ----  | ----  |
| 13C8-PFOA   | ----               | 0.02                 | %                 | <b>91.0</b>   | ----  | ----  | ----  |



## Surrogate Control Limits

| Sub-Matrix: GROUNDWATER       |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |



QUALITY CONTROL REPORT

Work Order : EM2305196

Page : 1 of 6

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Contact : [REDACTED]

Address : [REDACTED]

Address : [REDACTED]

Telephone : ----

Telephone : [REDACTED]

Project : VIC\_0927\_PFASOMP

Date Samples Received : 23-Mar-2023

Order number : -

Date Analysis Commenced : 27-Mar-2023

C-O-C number : 49995

Issue Date : 28-Mar-2023

Sampler : [REDACTED]

Site : GW - onsite.2

Quote number : SY/139/19\_Laverton

No. of samples received : 1

No. of samples analysed : 1



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.

Table with 3 columns: Signatories, Position, Accreditation Category. Row 1: [REDACTED], Senior Organic Chemist, [REDACTED]



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

|  |           |   |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|---|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method: Compound  | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4953702)</b>   |           |   |            |                                   |      |                 |                  |         |                    |
| EM2305193-001  | Anonymous | EP231X: Perfluorohexane sulfonic acid (PFHxS)                     | 355-46-4   | 0.01                              | µg/L | 0.03            | 0.03             | 0.0     | No Limit           |
|  |           | EP231X: Perfluorooctane sulfonic acid (PFOS)                      | 1763-23-1  | 0.01                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutane sulfonic acid (PFBS)                      | 375-73-5   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentane sulfonic acid (PFPeS)                    | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS)                    | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecane sulfonic acid (PFDS)                      | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4953702)</b> |           |   |            |                                   |      |                 |                  |         |                    |
| EM2305193-001  | Anonymous | EP231X: Perfluorooctanoic acid (PFOA)                             | 335-67-1   | 0.01                              | µg/L | 0.01            | 0.02             | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentanoic acid (PFPeA)                           | 2706-90-3  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorohexanoic acid (PFHxA)                            | 307-24-4   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptanoic acid (PFHpA)                           | 375-85-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorononanoic acid (PFNA)                             | 375-95-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecanoic acid (PFDA)                             | 335-76-2   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroundecanoic acid (PFUnDA)                         | 2058-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorododecanoic acid (PFDoDA)                         | 307-55-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotridecanoic acid (PFTrDA)                        | 72629-94-8 | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)                      | 376-06-7   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutanoic acid (PFBA)                             | 375-22-4   | 0.1                               | µg/L | 0.2             | 0.2              | 0.0     | No Limit           |
|  |           | <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4953702)</b>      |            |                                   |      |                 |                  |         |                    |
| EM2305193-001  | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |



| Sub-Matrix: WATER  |           |  |                    | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|--|--------------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method: Compound   | CAS Number         | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4953702) - continued</b> |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2305193-001  | Anonymous | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)        | 31506-32-8         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)         | 4151-50-2          | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE) | 24448-09-7         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)  | 1691-99-2          | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4953702)</b>      |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2305193-001  | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)            | 757124-72-4        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)            | 27619-97-2         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)            | 39108-34-4         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)          | 120226-60-0        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231P: PFAS Sums (QC Lot: 4953702)</b>                               |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2305193-001  | Anonymous | EP231X: Sum of PFAS  | ----               | 0.01                              | µg/L | 0.26            | 0.27             | 3.8     | 0% - 20%           |
|  |           | EP231X: Sum of PFHxS and PFOS                                | 355-46-4/1763-23-1 | 0.01                              | µg/L | 0.05            | 0.05             | 0.0     | No Limit           |
|  |           | EP231X: Sum of PFAS (WA DER List)                            | ----               | 0.01                              | µg/L | 0.26            | 0.27             | 3.8     | 0% - 20%           |



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

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

Sub-Matrix: **WATER**

| Method: Compound   | CAS Number  | LOR  | Unit | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |                       |      |
|--|-------------|------|------|-----------------------------|---------------------------------------|--------------------|-----------------------|------|
|  |             |      |      | Result                      | Spike<br>Concentration                | Spike Recovery (%) | Acceptable Limits (%) |      |
|  |             |      |      |                             |                                       | LCS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4953702)</b>      |             |      |      |                             |                                       |                    |                       |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                       | 375-73-5    | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 83.2               | 72.0                  | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                     | 2706-91-4   | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 92.8               | 71.0                  | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                      | 355-46-4    | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 87.7               | 68.0                  | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                     | 375-92-8    | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 100                | 69.0                  | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                       | 1763-23-1   | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 82.4               | 65.0                  | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                       | 335-77-3    | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 76.7               | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4953702)</b>    |             |      |      |                             |                                       |                    |                       |      |
| EP231X: Perfluorobutanoic acid (PFBA)                              | 375-22-4    | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 94.9               | 73.0                  | 129  |
| EP231X: Perfluoropentanoic acid (PFPeA)                            | 2706-90-3   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.8               | 72.0                  | 129  |
| EP231X: Perfluorohexanoic acid (PFHxA)                             | 307-24-4    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.7               | 72.0                  | 129  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                            | 375-85-9    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 87.5               | 72.0                  | 130  |
| EP231X: Perfluorooctanoic acid (PFOA)                              | 335-67-1    | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 88.6               | 71.0                  | 133  |
| EP231X: Perfluorononanoic acid (PFNA)                              | 375-95-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.0               | 69.0                  | 130  |
| EP231X: Perfluorodecanoic acid (PFDA)                              | 335-76-2    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 84.5               | 71.0                  | 129  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                          | 2058-94-8   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 87.7               | 69.0                  | 133  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                          | 307-55-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.3               | 72.0                  | 134  |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                         | 72629-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 83.3               | 65.0                  | 144  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                       | 376-06-7    | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 112                | 71.0                  | 132  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953702)</b>        |             |      |      |                             |                                       |                    |                       |      |
| EP231X: Perfluorooctane sulfonamide (FOSA)                         | 754-91-6    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.8               | 67.0                  | 137  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)              | 31506-32-8  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 111                | 68.0                  | 141  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)               | 4151-50-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 98.4               | 70.0                  | 130  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)       | 24448-09-7  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 93.1               | 70.0                  | 130  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)        | 1691-99-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 95.6               | 70.0                  | 130  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)  | 2355-31-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 106                | 65.0                  | 136  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)   | 2991-50-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 101                | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953702)</b> |             |      |      |                             |                                       |                    |                       |      |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                  | 757124-72-4 | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 91.1               | 63.0                  | 143  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                  | 27619-97-2  | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 95.3               | 64.0                  | 140  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                  | 39108-34-4  | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 91.0               | 67.0                  | 138  |





Sub-Matrix: WATER

| Method: Compound   | CAS Number             | LOR  | Unit | Method Blank (MB) Report<br>Result | Laboratory Control Spike (LCS) Report |                    |      |                       |  |
|--|------------------------|------|------|------------------------------------|---------------------------------------|--------------------|------|-----------------------|--|
|  |                        |      |      |                                    | Spike Concentration                   | Spike Recovery (%) |      | Acceptable Limits (%) |  |
|  |                        |      |      |                                    |                                       | LCS                | Low  | High                  |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953702) - continued</b> |                        |      |      |                                    |                                       |                    |      |                       |  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                              | 0.242 µg/L                            | 73.6               | 70.0 | 130                   |  |
| <b>EP231P: PFAS Sums (QCLot: 4953702)</b>                                      |                        |      |      |                                    |                                       |                    |      |                       |  |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ---- | ----                  |  |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ---- | ----                  |  |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ---- | ----                  |  |

### Matrix Spike (MS) Report

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

Sub-Matrix: WATER

| Laboratory sample ID  | Sample ID | Method: Compound                               | CAS Number | Matrix Spike (MS) Report |                          |                       |      |
|---|-----------|--|------------|--------------------------|--------------------------|-----------------------|------|
|   |           |  |            | Spike Concentration      | Spike Recovery (%)<br>MS | Acceptable Limits (%) |      |
|   |           |  |            |                          |                          | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4953702)</b>   |           |  |            |                          |                          |                       |      |
| EM2305193-002   | Anonymous | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.222 µg/L               | 87.3                     | 72.0                  | 130  |
|   |           | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.235 µg/L               | 75.4                     | 71.0                  | 127  |
|   |           | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.228 µg/L               | # Not Determined         | 68.0                  | 131  |
|   |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.238 µg/L               | 109                      | 69.0                  | 134  |
|   |           | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.232 µg/L               | # Not Determined         | 65.0                  | 140  |
|   |           | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.241 µg/L               | 73.3                     | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4953702)</b> |           |  |            |                          |                          |                       |      |
| EM2305193-002   | Anonymous | EP231X: Perfluorobutanoic acid (PFBA)          | 375-22-4   | 1.25 µg/L                | 82.7                     | 73.0                  | 129  |
|   |           | EP231X: Perfluoropentanoic acid (PFPeA)        | 2706-90-3  | 0.25 µg/L                | 84.7                     | 72.0                  | 129  |
|   |           | EP231X: Perfluorohexanoic acid (PFHxA)         | 307-24-4   | 0.25 µg/L                | 84.1                     | 72.0                  | 129  |
|   |           | EP231X: Perfluoroheptanoic acid (PFHpA)        | 375-85-9   | 0.25 µg/L                | 82.4                     | 72.0                  | 130  |
|   |           | EP231X: Perfluorooctanoic acid (PFOA)          | 335-67-1   | 0.25 µg/L                | 83.0                     | 71.0                  | 133  |
|   |           | EP231X: Perfluorononanoic acid (PFNA)          | 375-95-1   | 0.25 µg/L                | # Not Determined         | 69.0                  | 130  |
|   |           | EP231X: Perfluorodecanoic acid (PFDA)          | 335-76-2   | 0.25 µg/L                | 82.1                     | 71.0                  | 129  |
|   |           | EP231X: Perfluoroundecanoic acid (PFUnDA)      | 2058-94-8  | 0.25 µg/L                | 89.3                     | 69.0                  | 133  |
|   |           | EP231X: Perfluorododecanoic acid (PFDoDA)      | 307-55-1   | 0.25 µg/L                | 96.2                     | 72.0                  | 134  |
|   |           | EP231X: Perfluorotridecanoic acid (PFTTrDA)    | 72629-94-8 | 0.25 µg/L                | 83.9                     | 65.0                  | 144  |
|   |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)   | 376-06-7   | 0.625 µg/L               | 107                      | 71.0                  | 132  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953702)</b>     |           |  |            |                          |                          |                       |      |
| EM2305193-002   | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)     | 754-91-6   | 0.25 µg/L                | 93.4                     | 67.0                  | 137  |



Sub-Matrix: WATER

|   |           |   |             | Matrix Spike (MS) Report |                  |                       |      |
|---|-----------|---|-------------|--------------------------|------------------|-----------------------|------|
|   |           |   |             | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number  | Concentration            | MS               | Low                   | High |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953702) - continued</b> |           |   |             |                          |                  |                       |      |
| EM2305193-002   | Anonymous | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.625 µg/L               | 113              | 68.0                  | 141  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.625 µg/L               | 104              | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 99.7             | 70.0                  | 130  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 104              | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 104              | 65.0                  | 136  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 97.5             | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953702)</b>      |           |   |             |                          |                  |                       |      |
| EM2305193-002   | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 93.6             | 63.0                  | 143  |
|   |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 86.4             | 64.0                  | 140  |
|   |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 100              | 67.0                  | 138  |
|   |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | # 60.7           | 70.0                  | 130  |

## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2305196                 | Page                    | : 1 of 4                           |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : [REDACTED]                       |
| Project      | : VIC_0927_PFASOMP          | Date Samples Received   | : 23-Mar-2023                      |
| Site         | : GW - onsite.2             | Issue Date              | : 28-Mar-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 1                                |
| Order number | : -                         | No. of samples analysed | : 1                                |

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



**Outliers : Quality Control Samples**

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: WATER

| Compound Group Name                        | Laboratory Sample ID | Client Sample ID | Analyte                                     | CAS Number  | Data           | Limits    | Comment   |
|--|----------------------|------------------|---|-------------|----------------|-----------|---|
| <b>Matrix Spike (MS) Recoveries</b>        |                      |                  |   |             |                |           |   |
| EP231A: Perfluoroalkyl Sulfonic Acids      | EM2305193--002       | Anonymous        | Perfluorohexane sulfonic acid (PFHxS)       | 355-46-4    | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids      | EM2305193--002       | Anonymous        | Perfluorooctane sulfonic acid (PFOS)        | 1763-23-1   | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids    | EM2305193--002       | Anonymous        | Perfluorononanoic acid (PFNA)               | 375-95-1    | Not Determined | ----      | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231D: (n:2) Fluorotelomer Sulfonic Acids | EM2305193--002       | Anonymous        | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0 | 60.7 %         | 70.0-130% | Recovery less than lower data quality objective                                       |

**Analysis Holding Time Compliance**

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

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

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

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

Matrix: WATER Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)         | Sample Date | Extraction / Preparation |                    |            | Analysis      |                  |            |
|---|-------------|--------------------------|--------------------|------------|---------------|------------------|------------|
|   |             | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>      |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230322      | 22-Mar-2023 | 27-Mar-2023              | 18-Sep-2023        | ✓          | 28-Mar-2023   | 18-Sep-2023      | ✓          |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>    |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230322      | 22-Mar-2023 | 27-Mar-2023              | 18-Sep-2023        | ✓          | 28-Mar-2023   | 18-Sep-2023      | ✓          |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>        |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230322      | 22-Mar-2023 | 27-Mar-2023              | 18-Sep-2023        | ✓          | 28-Mar-2023   | 18-Sep-2023      | ✓          |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b> |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230322      | 22-Mar-2023 | 27-Mar-2023              | 18-Sep-2023        | ✓          | 28-Mar-2023   | 18-Sep-2023      | ✓          |
| <b>EP231P: PFAS Sums</b>                          |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230322      | 22-Mar-2023 | 27-Mar-2023              | 18-Sep-2023        | ✓          | 28-Mar-2023   | 18-Sep-2023      | ✓          |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 4       | 25.00    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 4       | 25.00    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 4       | 25.00    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 4       | 25.00    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |



## Brief Method Summaries

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

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Solid Phase Extraction (SPE) for PFAS in water       | ORG72         | WATER         | In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.  |

 **CHAIN OF CUSTODY**  
 (ALS) COC#: 49733 ALS Laboratory: EM Melbourne

RELINQUISHED BY:  
DATE TIME:

RECEIVED BY:  
DATE TIME:

RELINQUISHED BY:  
DATE TIME:

RECEIVED BY:  
DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD  
 PROJECT: VIC\_0927\_PFASOMP  
 SITE: SW - ONSITE  
 ORDER NO:  
 PROJECT MANAGER:  
 PRIMARY SAMPLER:  
 EMAIL REPORTS TO:  
 EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days  
 Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact? Yes No N/A  
 Free ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: C  
 Other comments:

CONTACT PH: SAMPLER MOBILE:  
 QUOTE NO: SY/139/19\_Laverton / EM2023MWHAUS0002

**SAMPLE DETAILS**

**ANALYSIS REQUIRED**

| SAMPLE | NAME              | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
|--------|-------------------|-------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| 001    | 0927_SW006_230320 |             | 20/03/2023<br>11:08 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 002    | 0927_SW034_230320 |             | 20/03/2023<br>09:57 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 003    | 0927_QC104_230320 |             | 20/03/2023<br>11:19 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 004    | 0927_QC304_230320 |             | 20/03/2023<br>03:20 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 005    | 0927_QC305_230320 |             | 20/03/2023<br>03:20 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 006    | 0927_QC105_230321 |             | 21/03/2023<br>09:40 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 007    | 0927_QC106_230321 |             | 21/03/2023<br>01:32 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 008    | 0927_QC306_230321 |             | 21/03/2023<br>03:23 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 009    | 0927_QC307_230322 |             | 22/03/2023<br>09:03 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |

Environmental Division  
 Melbourne  
 Work Order Reference  
**EM2305194**



Telephone : + 61-3-8549 9600

**CHAIN OF CUSTODY**  
 (ALS) COC#: 49733 ALS Laboratory: EM Melbourne

|                  |              |                  |              |
|------------------|--------------|------------------|--------------|
| RELINQUISHED BY: | RECEIVED BY: | RELINQUISHED BY: | RECEIVED BY: |
| DATE TIME:       | DATE TIME:   | DATE TIME:       | DATE TIME:   |

CLIENT: MWHHAUS - STANTEC AUSTRALIA PTY LTD  
 PROJECT: VIC\_0927\_PFASOMP  
 SITE: SW - ONSITE  
 ORDER NO:  
 PROJECT MANAGER:  
 PRIMARY SAMPLER:  
 EMAIL REPORTS TO:  
 EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days  
 Biohazard info:

CONTACT PH: SAMPLER MOBILE:  
 QUOTE NO: SY/139/19\_Laverton / EM2023MWHHAUS000  
 2

**LABORATORY USE ONLY (Circle)**  
 Custody Seal intact? Yes No N/A  
 Free ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: °C  
 Other comments:

| SAMPLE DETAILS |                   |             |                        |        |                      |         | ANALYSIS REQUIRED |                      |                        |
|----------------|-------------------|-------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| SAMPLE         | NAME              | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 010            | 0927_QC503_230322 |             | 22/03/2023<br>11:07 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      | trip blank             |



CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: VIC\_0927\_PFSOMP

SITE: SW - ONSITE

ORDER NO:

PROJECT MANAGER:

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

RELINQUISHED BY:

DATE TIME:

RECEIVED BY:

DATE TIME:

RELINQUISHED BY:

DATE TIME:

RECEIVED BY:

DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: C

Other comments:

CONTACT PH:

SAMPLER MOBILE:

QUOTE NO: SY/139/19\_Laverton

/ EM2023MWHAUS000  
2

| SAMPLE | SAMPLE NAME       | BOTTLE NAME    | VOLUME | BARCODE        | TYPE | FILTERED | REASON |
|--------|-------------------|----------------|--------|----------------|------|----------|--------|
| 001    | 0927_SW006_230320 | HDPE (no PTFE) | 20 mL  | 00350522084263 | Grey | No       |        |
| 001    | 0927_SW006_230320 | HDPE (no PTFE) | 20 mL  | 00350522083762 | Grey | No       |        |
| 002    | 0927_SW034_230320 | HDPE (no PTFE) | 20 mL  | 00350522083839 | Grey | No       |        |
| 002    | 0927_SW034_230320 | HDPE (no PTFE) | 20 mL  | 00350522083856 | Grey | No       |        |
| 003    | 0927_QC104_230320 | HDPE (no PTFE) | 20 mL  | 00350522083935 | Grey | No       |        |
| 003    | 0927_QC104_230320 | HDPE (no PTFE) | 20 mL  | 00350522001735 | Grey | No       |        |
| 004    | 0927_QC304_230320 | HDPE (no PTFE) | 20 mL  | 00350522084971 | Grey | No       |        |
| 004    | 0927_QC304_230320 | HDPE (no PTFE) | 20 mL  | 00350522084972 | Grey | No       |        |
| 005    | 0927_QC305_230320 | HDPE (no PTFE) | 20 mL  | 00350522064704 | Grey | No       |        |
| 005    | 0927_QC305_230320 | HDPE (no PTFE) | 20 mL  | 00350522083892 | Grey | No       |        |
| 006    | 0927_QC105_230321 | HDPE (no PTFE) | 20 mL  | 00350522084057 | Grey | No       |        |
| 006    | 0927_QC105_230321 | HDPE (no PTFE) | 20 mL  | 00350522064769 | Grey | No       |        |
| 007    | 0927_QC106_230321 | HDPE (no PTFE) | 20 mL  | 00350522084365 | Grey | No       |        |
| 007    | 0927_QC106_230321 | HDPE (no PTFE) | 20 mL  | 00350522084348 | Grey | No       |        |
| 008    | 0927_QC306_230321 | HDPE (no PTFE) | 20 mL  | 00350522084362 | Grey | No       |        |
| 008    | 0927_QC306_230321 | HDPE (no PTFE) | 20 mL  | 00350522084367 | Grey | No       |        |
| 009    | 0927_QC307_230322 | HDPE (no PTFE) | 20 mL  | 00350522084189 | Grey | No       |        |
| 009    | 0927_QC307_230322 | HDPE (no PTFE) | 20 mL  | 00350522084270 | Grey | No       |        |
| 010    | 0927_QC503_230322 | HDPE (no PTFE) | 20 mL  | 00350522083920 | Grey | No       |        |
| 010    | 0927_QC503_230322 | HDPE (no PTFE) | 20 mL  | 00350522084202 | Grey | No       |        |

Total Bottle Count: ALS: 20, Non ALS: 0



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM2305194

|              |   |              |   |
|--------------|---|--------------|---|
| Client       | : STANTEC AUSTRALIA PTY LTD                                     | Laboratory   | : Environmental Division Melbourne              |
| Contact      | : [REDACTED]  | Contact      | : [REDACTED]                                    |
| Address      | : LEVEL 21 28 FRESHWATER PLACE<br>SOUTHBANK VIC, AUSTRALIA 3006 | Address      | : 4 Westall Rd Springvale VIC Australia<br>3171 |
| E-mail       | : [REDACTED]  | E-mail       | : [REDACTED]                                    |
| Telephone    | : ----  | Telephone    | : +6138549 9609                                 |
| Facsimile    | : ----  | Facsimile    | : +61-3-8549 9626                               |
| Project      | : VIC_0927_PFASOMP  | Page         | : 1 of 3  |
| Order number | : -   | Quote number | : EM2023MWHHAUS0002<br>(SY/139/19_Laverton)     |
| C-O-C number | : 49733   | QC Level     | : NEPM 2013 B3 & ALS QC Standard                |
| Site         | : SW - ONSITE   |              |   |
| Sampler      | : [REDACTED]  |              |   |

Dates

|                           |                     |                          |                      |
|---------------------------|---------------------|--------------------------|----------------------|
| Date Samples Received     | : 23-Mar-2023 19:35 | Issue Date               | : 24-Mar-2023        |
| Client Requested Due Date | : 31-Mar-2023       | Scheduled Reporting Date | : <b>31-Mar-2023</b> |

Delivery Details

|                      |           |                                    |                       |
|----------------------|-----------|------------------------------------|-----------------------|
| Mode of Delivery     | : Carrier | Security Seal                      | : Not Available       |
| No. of coolers/boxes | : 1       | Temperature                        | : 4.1°C - Ice present |
| Receipt Detail       | :         | No. of samples received / analysed | : 10 / 10             |

General Comments

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



## Sample Container(s)/Preservation Non-Compliances

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

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

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

| Laboratory sample ID | Sampling date / time | Sample ID         | WATER - EP231X<br>PFAS - Full Suite (28 analytes) |
|----------------------|----------------------|-------------------|---|
| EM2305194-001        | 20-Mar-2023 11:08    | 0927_SW006_230320 | ✓   |
| EM2305194-002        | 20-Mar-2023 09:57    | 0927_SW034_230320 | ✓   |
| EM2305194-003        | 20-Mar-2023 11:19    | 0927_QC104_230320 | ✓   |
| EM2305194-004        | 20-Mar-2023 15:20    | 0927_QC304_230320 | ✓   |
| EM2305194-005        | 20-Mar-2023 15:20    | 0927_QC305_230320 | ✓   |
| EM2305194-006        | 21-Mar-2023 09:40    | 0927_QC105_230321 | ✓   |
| EM2305194-007        | 21-Mar-2023 13:32    | 0927_QC106_230321 | ✓   |
| EM2305194-008        | 21-Mar-2023 15:23    | 0927_QC306_230321 | ✓   |
| EM2305194-009        | 22-Mar-2023 09:03    | 0927_QC307_230322 | ✓   |
| EM2305194-010        | 22-Mar-2023 11:07    | 0927_QC503_230322 | ✓   |

## Proactive Holding Time Report

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





CERTIFICATE OF ANALYSIS

Work Order : EM2305194
Client : STANTEC AUSTRALIA PTY LTD
Contact : [Redacted]
Address : [Redacted]
Telephone : [Redacted]
Project : VIC\_0927\_PFASOMP
Order number : -
C-O-C number : 49733
Sampler : [Redacted]
Site : SW - ONSITE
Quote number : SY/139/19\_Laverton
No. of samples received : 10
No. of samples analysed : 10

Page : 1 of 9
Laboratory : Environmental Division Melbourne
Contact : [Redacted]
Address : [Redacted]
Telephone : [Redacted]
Date Samples Received : 23-Mar-2023 19:35
Date Analysis Commenced : 25-Mar-2023
Issue Date : 28-Mar-2023 12:51



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.

Table with 3 columns: Signatories, Position, Accreditation Category. Row 1: [Redacted], Senior Organic Chemist, [Redacted]



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X: Poor matrix spike recovery for sample EM2305186-002 due to sample matrix interference.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



## Analytical Results

| Sub-Matrix: RINSATE<br>(Matrix: WATER)         |            |      | Sample ID            | 0927_QC304_230320 | 0927_QC305_230320 | 0927_QC306_230321 | 0927_QC307_230322 | ----  |
|--|------------|------|----------------------|-------------------|-------------------|-------------------|-------------------|-------|
|  |            |      | Sampling date / time | 20-Mar-2023 15:20 | 20-Mar-2023 15:20 | 21-Mar-2023 15:23 | 22-Mar-2023 09:03 | ----  |
| Compound                                       | CAS Number | LOR  | Unit                 | EM2305194-004     | EM2305194-005     | EM2305194-008     | EM2305194-009     | ----- |
|  |            |      |                      | Result            | Result            | Result            | Result            | ----  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |                      |                   |                   |                   |                   |       |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L                 | <0.01             | <0.01             | <0.01             | <0.01             | ----  |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L                 | <0.01             | <0.01             | <0.01             | <0.01             | ----  |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |                      |                   |                   |                   |                   |       |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L                 | <0.1              | <0.1              | <0.1              | <0.1              | ----  |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L                 | <0.01             | <0.01             | <0.01             | <0.01             | ----  |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L                 | <0.05             | <0.05             | <0.05             | <0.05             | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |                      |                   |                   |                   |                   |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L                 | <0.02             | <0.02             | <0.02             | <0.02             | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L                 | <0.05             | <0.05             | <0.05             | <0.05             | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L                 | <0.05             | <0.05             | <0.05             | <0.05             | ----  |



## Analytical Results

| Sub-Matrix: RINSATE<br>(Matrix: WATER)                    |                    |      |      | Sample ID         | 0927_QC304_230320 | 0927_QC305_230320 | 0927_QC306_230321 | 0927_QC307_230322 | ----  |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Sampling date / time                                      |                    |      |      | 20-Mar-2023 15:20 | 20-Mar-2023 15:20 | 21-Mar-2023 15:23 | 22-Mar-2023 09:03 | ----              | ----  |
| Compound  | CAS Number         | LOR  | Unit | EM2305194-004     | EM2305194-005     | EM2305194-008     | EM2305194-009     | -----             | ----- |
|   |                    |      |      | Result            | Result            | Result            | Result            | ----              | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |       |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | ----              | ----  |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | ----              | ----  |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | ----              | ----  |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | ----              | ----  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |       |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | ----              | ----  |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | ----              | ----  |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | ----              | ----  |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | ----              | ----  |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |       |
| Sum of PFAS   | ----               | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | <0.01             | ----              | ----  |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | <0.01             | ----              | ----  |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <0.01             | <0.01             | <0.01             | <0.01             | ----              | ----  |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |       |
| 13C4-PFOS   | ----               | 0.02 | %    | 86.9              | 93.0              | 85.6              | 93.1              | ----              | ----  |
| 13C8-PFOA   | ----               | 0.02 | %    | 91.0              | 89.5              | 93.1              | 91.0              | ----              | ----  |





## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)   |            |      |      | Sample ID            | 0927_SW006_230320 | 0927_SW034_230320 | 0927_QC104_230320 | 0927_QC105_230321 | 0927_QC106_230321 |
|--|------------|------|------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  |            |      |      | Sampling date / time | 20-Mar-2023 11:08 | 20-Mar-2023 09:57 | 20-Mar-2023 11:19 | 21-Mar-2023 09:40 | 21-Mar-2023 13:32 |
| Compound                                       | CAS Number | LOR  | Unit | EM2305194-001        | EM2305194-002     | EM2305194-003     | EM2305194-006     | EM2305194-007     |                   |
|  |            |      |      | Result               | Result            | Result            | Result            | Result            |                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02                | 2.70              | <0.02             | 0.02              | <0.02             |                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                | 3.84              | <0.02             | 0.02              | <0.02             |                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | <0.01                | 21.0              | 0.01              | 0.14              | 0.04              |                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02                | 0.98              | <0.02             | <0.02             | <0.02             |                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | <0.01                | 34.6              | 0.01              | 0.12              | 0.03              |                   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                | 0.08              | <0.02             | <0.02             | <0.02             |                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                 | 0.4               | <0.1              | <0.1              | <0.1              |                   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                | 1.25              | <0.02             | <0.02             | <0.02             |                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02                | 7.39              | <0.02             | 0.04              | <0.02             |                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                | 1.23              | <0.02             | <0.02             | <0.02             |                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01                | 0.96              | <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             |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                | 0.09              | <0.02             | <0.02             | <0.02             |                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |



## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)              |                    |      |      | Sample ID     | 0927_SW006_230320 | 0927_SW034_230320 | 0927_QC104_230320 | 0927_QC105_230321 | 0927_QC106_230321 |
|---|--------------------|------|------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      |               | 20-Mar-2023 11:08 | 20-Mar-2023 09:57 | 20-Mar-2023 11:19 | 21-Mar-2023 09:40 | 21-Mar-2023 13:32 |
| Compound  | CAS Number         | LOR  | Unit | EM2305194-001 | EM2305194-002     | EM2305194-003     | EM2305194-006     | EM2305194-007     |                   |
|   |                    |      |      | Result        | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |               |                   |                   |                   |                   |                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05         | <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             | <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             | <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             | <0.02             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |               |                   |                   |                   |                   |                   |
| 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             | <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             | <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             | <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             | <0.05             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |               |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | <0.01         | 74.5              | 0.02              | 0.35              | 0.07              |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <0.01         | 55.6              | 0.02              | 0.26              | 0.07              |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <0.01         | 69.5              | 0.02              | 0.33              | 0.07              |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |               |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 94.3          | 86.1              | 103               | 92.6              | 91.8              |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | 92.5          | 91.8              | 95.1              | 92.8              | 93.5              |                   |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)           |            | Sample ID            |      | 0927_QC503_230322 | ----  | ----  | ----  | ----  |
|--|------------|----------------------|------|-------------------|-------|-------|-------|-------|
|  |            | Sampling date / time |      | 22-Mar-2023 11:07 | ----  | ----  | ----  | ----  |
| Compound                                       | CAS Number | LOR                  | Unit | EM2305194-010     | ----- | ----- | ----- | ----- |
|  |            |                      |      | Result            | ----  | ----  | ----  | ----  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |                      |      |                   |       |       |       |       |
| 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             | ----  | ----  | ----  | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |                      |      |                   |       |       |       |       |
| 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             | ----  | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |                      |      |                   |       |       |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02                 | µg/L | <0.02             | ----  | ----  | ----  | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05                 | µg/L | <0.05             | ----  | ----  | ----  | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05                 | µg/L | <0.05             | ----  | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)                      |                    | Sample ID            | 0927_QC503_230322 | ----          | ----  | ----  | ----  |
|---|--------------------|----------------------|-------------------|---------------|-------|-------|-------|
|   |                    | Sampling date / time | 22-Mar-2023 11:07 | ----          | ----  | ----  | ----  |
| Compound  | CAS Number         | LOR                  | Unit              | EM2305194-010 | ----- | ----- | ----- |
|   |                    |                      |                   | Result        | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |                      |                   |               |       |       |       |
| 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         | ----  | ----  | ----  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |                      |                   |               |       |       |       |
| 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         | ----  | ----  | ----  |
| <b>EP231P: PFAS Sums</b>                                  |                    |                      |                   |               |       |       |       |
| 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         | ----  | ----  | ----  |
| <b>EP231S: PFAS Surrogate</b>                             |                    |                      |                   |               |       |       |       |
| 13C4-PFOS   | ----               | 0.02                 | %                 | <b>89.9</b>   | ----  | ----  | ----  |
| 13C8-PFOA   | ----               | 0.02                 | %                 | <b>92.8</b>   | ----  | ----  | ----  |



### Surrogate Control Limits

| Sub-Matrix: RINSATE           |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |

| Sub-Matrix: SURFACE WATER     |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |

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

## QUALITY CONTROL REPORT

**Work Order : EM2305194**
**Page : 1 of 6**
**Client : STANTEC AUSTRALIA PTY LTD**
**Laboratory : Environmental Division Melbourne**
**Contact : [REDACTED]**
**Contact : [REDACTED]**
**Address : [REDACTED]**
**Address : [REDACTED]**
**Telephone : ----**
**Telephone : [REDACTED]**
**Project : VIC\_0927\_PFASOMP**
**Date Samples Received : 23-Mar-2023**
**Order number : -**
**Date Analysis Commenced : 25-Mar-2023**
**C-O-C number : 49733**
**Issue Date : 28-Mar-2023**
**Sampler : [REDACTED]**
**Site : SW - ONSITE**
**Quote number : SY/139/19\_Laverton**
**No. of samples received : 10**
**No. of samples analysed : 10**


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

This Quality Control Report contains the following information:

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

### Signatories

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

| Signatories | Position               | Accreditation Category |
|-------------|------------------------|------------------------|
| [REDACTED]  | Senior Organic Chemist | [REDACTED]             |



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

|  |           |   |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|---|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method: Compound  | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4953125)</b>   |           |   |            |                                   |      |                 |                  |         |                    |
| EM2305186-001  | Anonymous | EP231X: Perfluorohexane sulfonic acid (PFHxS)                     | 355-46-4   | 0.01                              | µg/L | 0.04            | 0.04             | 0.0     | No Limit           |
|  |           | EP231X: Perfluorooctane sulfonic acid (PFOS)                      | 1763-23-1  | 0.01                              | µg/L | 0.06            | 0.06             | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutane sulfonic acid (PFBS)                      | 375-73-5   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentane sulfonic acid (PFPeS)                    | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS)                    | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecane sulfonic acid (PFDS)                      | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4953125)</b> |           |   |            |                                   |      |                 |                  |         |                    |
| EM2305186-001  | Anonymous | EP231X: Perfluorooctanoic acid (PFOA)                             | 335-67-1   | 0.01                              | µg/L | 0.03            | 0.03             | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentanoic acid (PFPeA)                           | 2706-90-3  | 0.02                              | µg/L | 0.04            | 0.04             | 0.0     | No Limit           |
|  |           | EP231X: Perfluorohexanoic acid (PFHxA)                            | 307-24-4   | 0.02                              | µg/L | 0.02            | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptanoic acid (PFHpA)                           | 375-85-9   | 0.02                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|  |           | EP231X: Perfluorononanoic acid (PFNA)                             | 375-95-1   | 0.02                              | µg/L | 0.04            | 0.04             | 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           |
|  |           | <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4953125)</b>      |            |                                   |      |                 |                  |         |                    |
| EM2305186-001  | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |



| Sub-Matrix: WATER  |           |  |                    | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|--|--------------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method: Compound   | CAS Number         | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4953125) - continued</b> |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2305186-001  | Anonymous | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)        | 31506-32-8         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)         | 4151-50-2          | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE) | 24448-09-7         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)  | 1691-99-2          | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4953125)</b>      |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2305186-001  | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)            | 757124-72-4        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)            | 27619-97-2         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)            | 39108-34-4         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)          | 120226-60-0        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231P: PFAS Sums (QC Lot: 4953125)</b>                               |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2305186-001  | Anonymous | EP231X: Sum of PFAS  | ----               | 0.01                              | µg/L | 0.25            | 0.23             | 8.3     | 0% - 20%           |
|  |           | EP231X: Sum of PFHxS and PFOS                                | 355-46-4/1763-23-1 | 0.01                              | µg/L | 0.10            | 0.10             | 0.0     | 0% - 50%           |
|  |           | EP231X: Sum of PFAS (WA DER List)                            | ----               | 0.01                              | µg/L | 0.21            | 0.19             | 10.0    | 0% - 20%           |





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

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

Sub-Matrix: **WATER**

| Method: Compound   | CAS Number  | LOR  | Unit | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |      |                       |  |
|--|-------------|------|------|-----------------------------|---------------------------------------|--------------------|------|-----------------------|--|
|  |             |      |      | Result                      | Spike<br>Concentration                | Spike Recovery (%) |      | Acceptable Limits (%) |  |
|  |             |      |      |                             |                                       | LCS                | Low  | High                  |  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4953125)</b>      |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                       | 375-73-5    | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 91.4               | 72.0 | 130                   |  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                     | 2706-91-4   | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 105                | 71.0 | 127                   |  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                      | 355-46-4    | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 98.9               | 68.0 | 131                   |  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                     | 375-92-8    | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 105                | 69.0 | 134                   |  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                       | 1763-23-1   | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 91.4               | 65.0 | 140                   |  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                       | 335-77-3    | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 85.7               | 53.0 | 142                   |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4953125)</b>    |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutanoic acid (PFBA)                              | 375-22-4    | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 95.2               | 73.0 | 129                   |  |
| EP231X: Perfluoropentanoic acid (PFPeA)                            | 2706-90-3   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.4               | 72.0 | 129                   |  |
| EP231X: Perfluorohexanoic acid (PFHxA)                             | 307-24-4    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.3               | 72.0 | 129                   |  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                            | 375-85-9    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.5               | 72.0 | 130                   |  |
| EP231X: Perfluorooctanoic acid (PFOA)                              | 335-67-1    | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 93.0               | 71.0 | 133                   |  |
| EP231X: Perfluorononanoic acid (PFNA)                              | 375-95-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 91.8               | 69.0 | 130                   |  |
| EP231X: Perfluorodecanoic acid (PFDA)                              | 335-76-2    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 88.0               | 71.0 | 129                   |  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                          | 2058-94-8   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 105                | 69.0 | 133                   |  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                          | 307-55-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.1               | 72.0 | 134                   |  |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                         | 72629-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.9               | 65.0 | 144                   |  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                       | 376-06-7    | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 98.4               | 71.0 | 132                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953125)</b>        |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                         | 754-91-6    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 97.5               | 67.0 | 137                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)              | 31506-32-8  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 110                | 68.0 | 141                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)               | 4151-50-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 102                | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)       | 24448-09-7  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 91.8               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)        | 1691-99-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 94.0               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)  | 2355-31-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.6               | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)   | 2991-50-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 98.0               | 61.0 | 135                   |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953125)</b> |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                  | 757124-72-4 | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 96.3               | 63.0 | 143                   |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                  | 27619-97-2  | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 96.6               | 64.0 | 140                   |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                  | 39108-34-4  | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 97.1               | 67.0 | 138                   |  |



Sub-Matrix: **WATER**

| Method: Compound   | CAS Number             | LOR  | Unit | Method Blank (MB) Report<br>Result | Laboratory Control Spike (LCS) Report |                    |                       |      |
|--|------------------------|------|------|------------------------------------|---------------------------------------|--------------------|-----------------------|------|
|  |                        |      |      |                                    | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |      |
|  |                        |      |      |                                    |                                       | LCS                | Low                   | High |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953125) - continued</b> |                        |      |      |                                    |                                       |                    |                       |      |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                              | 0.242 µg/L                            | 79.2               | 70.0                  | 130  |
| <b>EP231P: PFAS Sums (QCLot: 4953125)</b>                                      |                        |      |      |                                    |                                       |                    |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |

### Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number | Matrix Spike (MS) Report |                          |                       |      |
|---|-----------|---|------------|--------------------------|--------------------------|-----------------------|------|
|   |           |   |            | Spike Concentration      | Spike Recovery (%)<br>MS | Acceptable Limits (%) |      |
|   |           |   |            |                          |                          | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4953125)</b>   |           |   |            |                          |                          |                       |      |
| EM2305186-002   | Anonymous | EP231X: Perfluorobutane sulfonic acid (PFBS)                | 375-73-5   | 0.222 µg/L               | # 153                    | 72.0                  | 130  |
|   |           | EP231X: Perfluoropentane sulfonic acid (PFPeS)              | 2706-91-4  | 0.235 µg/L               | 84.2                     | 71.0                  | 127  |
|   |           | EP231X: Perfluorohexane sulfonic acid (PFHxS)               | 355-46-4   | 0.228 µg/L               | 82.2                     | 68.0                  | 131  |
|   |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS)              | 375-92-8   | 0.238 µg/L               | 96.9                     | 69.0                  | 134  |
|   |           | EP231X: Perfluorooctane sulfonic acid (PFOS)                | 1763-23-1  | 0.232 µg/L               | 84.6                     | 65.0                  | 140  |
|   |           | EP231X: Perfluorodecane sulfonic acid (PFDS)                | 335-77-3   | 0.241 µg/L               | 82.2                     | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4953125)</b> |           |   |            |                          |                          |                       |      |
| EM2305186-002   | Anonymous | EP231X: Perfluorobutanoic acid (PFBA)                       | 375-22-4   | 1.25 µg/L                | 82.6                     | 73.0                  | 129  |
|   |           | EP231X: Perfluoropentanoic acid (PFPeA)                     | 2706-90-3  | 0.25 µg/L                | 110                      | 72.0                  | 129  |
|   |           | EP231X: Perfluorohexanoic acid (PFHxA)                      | 307-24-4   | 0.25 µg/L                | 129                      | 72.0                  | 129  |
|   |           | EP231X: Perfluoroheptanoic acid (PFHpA)                     | 375-85-9   | 0.25 µg/L                | 106                      | 72.0                  | 130  |
|   |           | EP231X: Perfluorooctanoic acid (PFOA)                       | 335-67-1   | 0.25 µg/L                | 94.7                     | 71.0                  | 133  |
|   |           | EP231X: Perfluorononanoic acid (PFNA)                       | 375-95-1   | 0.25 µg/L                | # 54.9                   | 69.0                  | 130  |
|   |           | EP231X: Perfluorodecanoic acid (PFDA)                       | 335-76-2   | 0.25 µg/L                | 80.7                     | 71.0                  | 129  |
|   |           | EP231X: Perfluoroundecanoic acid (PFUnDA)                   | 2058-94-8  | 0.25 µg/L                | 86.9                     | 69.0                  | 133  |
|   |           | EP231X: Perfluorododecanoic acid (PFDoDA)                   | 307-55-1   | 0.25 µg/L                | 86.3                     | 72.0                  | 134  |
|   |           | EP231X: Perfluorotridecanoic acid (PFTrDA)                  | 72629-94-8 | 0.25 µg/L                | 80.1                     | 65.0                  | 144  |
|   |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)                | 376-06-7   | 0.625 µg/L               | 77.4                     | 71.0                  | 132  |
|   |           | <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953125)</b> |            |                          |                          |                       |      |
| EM2305186-002   | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                  | 754-91-6   | 0.25 µg/L                | 87.2                     | 67.0                  | 137  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)       | 31506-32-8 | 0.625 µg/L               | 94.0                     | 68.0                  | 141  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)        | 4151-50-2  | 0.625 µg/L               | 76.1                     | 70.0                  | 130  |



Sub-Matrix: WATER

|   |           |   |             | Matrix Spike (MS) Report |                  |                       |      |
|---|-----------|---|-------------|--------------------------|------------------|-----------------------|------|
|   |           |   |             | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number  | Concentration            | MS               | Low                   | High |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953125) - continued</b> |           |   |             |                          |                  |                       |      |
| EM2305186-002   | Anonymous | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 83.6             | 70.0                  | 130  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 83.1             | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 88.0             | 65.0                  | 136  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 82.7             | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953125)</b>      |           |   |             |                          |                  |                       |      |
| EM2305186-002   | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 96.6             | 63.0                  | 143  |
|   |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 79.2             | 64.0                  | 140  |
|   |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 84.7             | 67.0                  | 138  |
|   |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | 72.9             | 70.0                  | 130  |

## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2305194                 | Page                    | : 1 of 5                           |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : [REDACTED]                       |
| Project      | : VIC_0927_PFASOMP          | Date Samples Received   | : 23-Mar-2023                      |
| Site         | : SW - ONSITE               | Issue Date              | : 28-Mar-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 10                               |
| Order number | : -                         | No. of samples analysed | : 10                               |

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



### Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: WATER

| Compound Group Name                     | Laboratory Sample ID | Client Sample ID | Analyte                              | CAS Number | Data   | Limits    | Comment  |
|---|----------------------|------------------|--------------------------------------|------------|--------|-----------|--|
| <b>Matrix Spike (MS) Recoveries</b>     |                      |                  |                                      |            |        |           |  |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2305186--002       | Anonymous        | Perfluorobutane sulfonic acid (PFBS) | 375-73-5   | 153 %  | 72.0-130% | Recovery greater than upper data quality objective |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2305186--002       | Anonymous        | Perfluorononanoic acid (PFNA)        | 375-95-1   | 54.9 % | 69.0-130% | Recovery less than lower data quality objective    |

### Outliers : Frequency of Quality Control Samples

Matrix: WATER

| Quality Control Sample Type                          | Count |         | Rate (%) |          | Quality Control Specification  |
|--|-------|---------|----------|----------|--------------------------------|
|  | QC    | Regular | Actual   | Expected |                                |
| Method   |       |         |          |          |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |       |         |          |          |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 1     | 12      | 8.33     | 10.00    | NEPM 2013 B3 & ALS QC Standard |

### Analysis Holding Time Compliance

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

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

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

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

Matrix: WATER

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method   | Sample Date                              | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_230320,<br>0927_QC104_230320,<br>0927_QC305_230320 | 0927_SW034_230320,<br>0927_QC304_230320, | 20-Mar-2023              | 25-Mar-2023        | 16-Sep-2023 | ✓             | 27-Mar-2023      | 16-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321,<br>0927_QC306_230321                       | 0927_QC106_230321,                       | 21-Mar-2023              | 25-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC307_230322,  | 0927_QC503_230322                        | 22-Mar-2023              | 25-Mar-2023        | 18-Sep-2023 | ✓             | 27-Mar-2023      | 18-Sep-2023 | ✓ |



Matrix: WATER

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date                              | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_230320,<br>0927_QC104_230320,<br>0927_QC305_230320 | 0927_SW034_230320,<br>0927_QC304_230320, | 20-Mar-2023              | 25-Mar-2023        | 16-Sep-2023 | ✓             | 27-Mar-2023      | 16-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321,<br>0927_QC306_230321                       | 0927_QC106_230321,                       | 21-Mar-2023              | 25-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC307_230322,  | 0927_QC503_230322                        | 22-Mar-2023              | 25-Mar-2023        | 18-Sep-2023 | ✓             | 27-Mar-2023      | 18-Sep-2023 | ✓ |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_230320,<br>0927_QC104_230320,<br>0927_QC305_230320 | 0927_SW034_230320,<br>0927_QC304_230320, | 20-Mar-2023              | 25-Mar-2023        | 16-Sep-2023 | ✓             | 27-Mar-2023      | 16-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321,<br>0927_QC306_230321                       | 0927_QC106_230321,                       | 21-Mar-2023              | 25-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC307_230322,  | 0927_QC503_230322                        | 22-Mar-2023              | 25-Mar-2023        | 18-Sep-2023 | ✓             | 27-Mar-2023      | 18-Sep-2023 | ✓ |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>  |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_230320,<br>0927_QC104_230320,<br>0927_QC305_230320 | 0927_SW034_230320,<br>0927_QC304_230320, | 20-Mar-2023              | 25-Mar-2023        | 16-Sep-2023 | ✓             | 27-Mar-2023      | 16-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321,<br>0927_QC306_230321                       | 0927_QC106_230321,                       | 21-Mar-2023              | 25-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC307_230322,  | 0927_QC503_230322                        | 22-Mar-2023              | 25-Mar-2023        | 18-Sep-2023 | ✓             | 27-Mar-2023      | 18-Sep-2023 | ✓ |
| <b>EP231P: PFAS Sums</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_230320,<br>0927_QC104_230320,<br>0927_QC305_230320 | 0927_SW034_230320,<br>0927_QC304_230320, | 20-Mar-2023              | 25-Mar-2023        | 16-Sep-2023 | ✓             | 27-Mar-2023      | 16-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321,<br>0927_QC306_230321                       | 0927_QC106_230321,                       | 21-Mar-2023              | 25-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC307_230322,  | 0927_QC503_230322                        | 22-Mar-2023              | 25-Mar-2023        | 18-Sep-2023 | ✓             | 27-Mar-2023      | 18-Sep-2023 | ✓ |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 12      | 8.33     | 10.00    | ✖          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 12      | 8.33     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 12      | 8.33     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 12      | 8.33     | 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.

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Solid Phase Extraction (SPE) for PFAS in water       | ORG72         | WATER         | In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.  |





# ALS Compass

SAMPLING *Intelligence*



Forwarded to  
 Laboratory Lab  
 Su Date 17/3

Environmental Division  
 Melbourne  
 Work Order Reference  
**EM2304823**



Telephone : + 61-3-8549 9600

## Custody Document for Submissions via ALS Compass App

Project: DEF19008 Client: CARDNO Project Manager: \_\_\_\_\_


Phone: ( \_\_\_\_\_ )

ALS Compass COC Reference: 49731 FZ # Samples: \_\_\_\_\_ Sampler: \_\_\_\_\_

Phone: ( \_\_\_\_\_ )

Turnaround Requirements: Standard \_\_\_\_\_ Urgent \_\_\_\_\_

|                       |  |     |    |     |
|-----------------------|--|-----|----|-----|
| Special Instructions: | ALS Use Only                               |     |    |     |
|                       | Custody seal intact?                       | YES | NO | N/A |
|                       | Free ice / frozen ice bricks upon receipt? | YES | NO | N/A |
|                       | Random sample temperature on receipt?      |     |    | °C  |

|                  |   |                  |              |
|------------------|---|------------------|--------------|
| Custody:         |   |                  |              |
| Relinquished by: | Received by:  | Relinquished by: | Received by: |
| Date / Time:     | 17/3/23<br>Date / Time: 16:25   | Date / Time:     | Date / Time: |

**ALS CHAIN OF CUSTODY**  
 ALS COC#: 49732 ALS Laboratory: EM Melbourne

RELINQUISHED BY:  
 DATE TIME:

RECEIVED BY:  
 DATE TIME: 16:25  
 17/3/23

RELINQUISHED BY:  
 DATE TIME:

RECEIVED BY:  
 DATE TIME:

CLIENT: MWHHAUS - STANTEC AUSTRALIA PTY LTD  
 PROJECT: VIC\_0927\_PASOMP  
 SITE: GW - OFFSITE  
 ORDER NO:  
 PROJECT MANAGER:  
 PRIMARY SAMPLER:  
 EMAIL REPORTS TO:  
 EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days  
 Biohazard info:  
 CONTACT PH: SAMPLER MOBILE:  
 QUOTE NO: SY/139/19\_Laverton / EM2023MWHHAUS000  
 2

**LABORATORY USE ONLY (Circle)**  
 Custody Seal intact? Yes No N/A  
 Free ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: °C  
 Other comments:

| SAMPLE DETAILS |                   |             |                        |        |                      |         | ANALYSIS REQUIRED |                      |                        |
|----------------|-------------------|-------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| SAMPLE         | NAME              | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 001            | 0927_MW121_230317 |             | 17/03/2023<br>11:37 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 002            | 0927_MW123_230317 |             | 17/03/2023<br>12:34 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 003            | 0927_MW124_230317 |             | 17/03/2023<br>10:33 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 | 17(84w)              |                        |
| 004            | 0927_MW126_230317 |             | 17/03/2023<br>10:55 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 005            | 0927_MW229_230317 |             | 17/03/2023<br>10:13 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 006            | 0927_MW130_230317 |             | 17/03/2023<br>11:36 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 007            | 0927_MW131_230317 |             | 17/03/2023<br>11:35 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 008            | 0927_MW228_230317 |             | 17/03/2023<br>11:20 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM2304823

|              |   |              |   |
|--------------|---|--------------|---|
| Client       | : STANTEC AUSTRALIA PTY LTD                                     | Laboratory   | : Environmental Division Melbourne              |
| Contact      | : [REDACTED]  | Contact      | : [REDACTED]                                    |
| Address      | : LEVEL 21 28 FRESHWATER PLACE<br>SOUTHBANK VIC, AUSTRALIA 3006 | Address      | : 4 Westall Rd Springvale VIC Australia<br>3171 |
| E-mail       | : [REDACTED]  | E-mail       | : [REDACTED]                                    |
| Telephone    | : ----  | Telephone    | : +6138549 9609                                 |
| Facsimile    | : ----  | Facsimile    | : +61-3-8549 9626                               |
| Project      | : VIC_0927_PFASOMP  | Page         | : 1 of 3  |
| Order number | : -   | Quote number | : EM2023MWHHAUS0002<br>(SY/139/19_Laverton)     |
| C-O-C number | : 49732   | QC Level     | : NEPM 2013 B3 & ALS QC Standard                |
| Site         | : GW - OFFSITE  |              |   |
| Sampler      | : [REDACTED]  |              |   |

Dates

|                           |                     |                          |                      |
|---------------------------|---------------------|--------------------------|----------------------|
| Date Samples Received     | : 17-Mar-2023 16:25 | Issue Date               | : 20-Mar-2023        |
| Client Requested Due Date | : 27-Mar-2023       | Scheduled Reporting Date | : <b>27-Mar-2023</b> |

Delivery Details

|                      |           |                                    |                        |
|----------------------|-----------|------------------------------------|------------------------|
| Mode of Delivery     | : Carrier | Security Seal                      | : Not Available        |
| No. of coolers/boxes | : 2       | Temperature                        | : 14.2°C - Ice present |
| Receipt Detail       | :         | No. of samples received / analysed | : 8 / 8                |

General Comments

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



## Sample Container(s)/Preservation Non-Compliances

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

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

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

| Laboratory sample ID | Sampling date / time | Sample ID         | WATER - EP231X<br>PFAS - Full Suite (28 analytes) |
|----------------------|----------------------|-------------------|---|
| EM2304823-001        | 17-Mar-2023 11:37    | 0927_MW121_230317 | ✓   |
| EM2304823-002        | 17-Mar-2023 12:34    | 0927_MW123_230317 | ✓   |
| EM2304823-003        | 17-Mar-2023 10:33    | 0927_MW124_230317 | ✓   |
| EM2304823-004        | 17-Mar-2023 10:55    | 0927_MW126_230317 | ✓   |
| EM2304823-005        | 17-Mar-2023 10:13    | 0927_MW229_230317 | ✓   |
| EM2304823-006        | 17-Mar-2023 11:36    | 0927_MW130_230317 | ✓   |
| EM2304823-007        | 17-Mar-2023 11:35    | 0927_MW131_230317 | ✓   |
| EM2304823-008        | 17-Mar-2023 11:20    | 0927_MW228_230317 | ✓   |

## Proactive Holding Time Report

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





CERTIFICATE OF ANALYSIS

Work Order : EM2304823
Client : STANTEC AUSTRALIA PTY LTD
Contact :
Address :
Telephone :
Project : VIC\_0927\_PFASOMP
Order number : -
C-O-C number : 49732
Sampler :
Site : GW - OFFSITE
Quote number : SY/139/19\_Laverton
No. of samples received : 8
No. of samples analysed : 8

Page : 1 of 7
Laboratory : Environmental Division Melbourne
Contact :
Address :
Telephone :
Date Samples Received : 17-Mar-2023 16:25
Date Analysis Commenced : 21-Mar-2023
Issue Date : 22-Mar-2023 14:11



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.

Table with 3 columns: Signatories, Position, Accreditation Category. Row 1: [Redacted], Senior Organic Chemist, [Redacted]



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

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



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW121_230317 | 0927_MW123_230317 | 0927_MW124_230317 | 0927_MW126_230317 | 0927_MW229_230317 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 17-Mar-2023 11:37 | 17-Mar-2023 12:34 | 17-Mar-2023 10:33 | 17-Mar-2023 10:55 | 17-Mar-2023 10:13 |
| Compound                                       | CAS Number | LOR  | Unit | EM2304823-001     | EM2304823-002     | EM2304823-003     | EM2304823-004     | EM2304823-005     |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.04              | 0.14              | 0.06              | 0.08              | 0.10              |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.05              | 0.14              | 0.05              | 0.03              | 0.10              |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.46              | 1.18              | 0.48              | 0.17              | 0.93              |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.02              | 0.08              | 0.02              | <0.02             | 0.04              |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.35              | 1.60              | 1.11              | 0.04              | 0.90              |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.02              | 0.05              | 0.02              | 0.13              | 0.03              |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.10              | 0.26              | 0.07              | 0.13              | 0.17              |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02             | 0.03              | 0.02              | 0.03              | <0.02             |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.02              | 0.05              | 0.07              | 0.03              | 0.03              |
| 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             |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |





## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW121_230317 | 0927_MW123_230317 | 0927_MW124_230317 | 0927_MW126_230317 | 0927_MW229_230317 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 17-Mar-2023 11:37 | 17-Mar-2023 12:34 | 17-Mar-2023 10:33 | 17-Mar-2023 10:55 | 17-Mar-2023 10:13 |
| Compound  | CAS Number         | LOR  | Unit | EM2304823-001     | EM2304823-002     | EM2304823-003     | EM2304823-004     | EM2304823-005     |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |
| 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             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |
| 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             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 1.06              | 3.53              | 1.90              | 0.64              | 2.30              |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 0.81              | 2.78              | 1.59              | 0.21              | 1.83              |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 0.99              | 3.31              | 1.83              | 0.61              | 2.16              |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 80.5              | 83.8              | 83.3              | 90.4              | 87.8              |
| 13C8-PFOA   | ----               | 0.02 | %    | 89.9              | 85.6              | 78.8              | 88.6              | 88.8              |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)     |            |      |      | Sample ID            | 0927_MW130_230317 | 0927_MW131_230317 | 0927_MW228_230317 | ----  | ----  |
|--|------------|------|------|----------------------|-------------------|-------------------|-------------------|-------|-------|
|  |            |      |      | Sampling date / time | 17-Mar-2023 11:36 | 17-Mar-2023 11:35 | 17-Mar-2023 11:20 | ----  | ----  |
| Compound                                       | CAS Number | LOR  | Unit |                      | EM2304823-006     | EM2304823-007     | EM2304823-008     | ----- | ----- |
|  |            |      |      |                      | Result            | Result            | Result            | ----  | ----  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                      |                   |                   |                   |       |       |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L |                      | 10.7              | 10.1              | 0.25              | ----  | ----  |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L |                      | 14.2              | 15.0              | 0.23              | ----  | ----  |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L |                      | 47.4              | 62.5              | 2.01              | ----  | ----  |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L |                      | 1.27              | 3.40              | 0.13              | ----  | ----  |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L |                      | 6.51              | 43.4              | 2.35              | ----  | ----  |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L |                      | <0.02             | <0.02             | <0.02             | ----  | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                      |                   |                   |                   |       |       |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L |                      | 0.9               | 0.9               | <0.1              | ----  | ----  |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L |                      | 4.33              | 4.32              | 0.07              | ----  | ----  |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L |                      | 20.8              | 21.2              | 0.46              | ----  | ----  |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L |                      | 1.91              | 2.08              | 0.05              | ----  | ----  |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L |                      | 2.12              | 3.28              | 0.08              | ----  | ----  |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L |                      | <0.02             | 0.02              | <0.02             | ----  | ----  |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L |                      | <0.02             | <0.02             | <0.02             | ----  | ----  |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L |                      | <0.02             | <0.02             | <0.02             | ----  | ----  |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L |                      | <0.02             | <0.02             | <0.02             | ----  | ----  |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L |                      | <0.02             | <0.02             | <0.02             | ----  | ----  |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L |                      | <0.05             | <0.05             | <0.05             | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                      |                   |                   |                   |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L |                      | <0.02             | <0.02             | <0.02             | ----  | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L |                      | <0.05             | <0.05             | <0.05             | ----  | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L |                      | <0.05             | <0.05             | <0.05             | ----  | ----  |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID         | 0927_MW130_230317 | 0927_MW131_230317 | 0927_MW228_230317 | ----  | ---- |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------|------|
| Sampling date / time                                      |                    |      |      | 17-Mar-2023 11:36 | 17-Mar-2023 11:35 | 17-Mar-2023 11:20 | ----              | ----  |      |
| Compound  | CAS Number         | LOR  | Unit | EM2304823-006     | EM2304823-007     | EM2304823-008     | -----             | ----- |      |
|   |                    |      |      | Result            | Result            | Result            | ----              | ----  |      |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |       |      |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | ----              | ----  |      |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |       |      |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | ----              | ----  |      |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |       |      |
| Sum of PFAS   | ----               | 0.01 | µg/L | 110               | 166               | 5.63              | ----              | ----  |      |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 53.9              | 106               | 4.36              | ----              | ----  |      |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 94.7              | 148               | 5.27              | ----              | ----  |      |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |       |      |
| 13C4-PFOS   | ----               | 0.02 | %    | 73.1              | 86.2              | 92.1              | ----              | ----  |      |
| 13C8-PFOA   | ----               | 0.02 | %    | 82.6              | 81.1              | 88.4              | ----              | ----  |      |



## Surrogate Control Limits

| Sub-Matrix: GROUNDWATER       |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |



QUALITY CONTROL REPORT

Work Order : EM2304823

Page : 1 of 4

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Contact : [REDACTED]

Address : [REDACTED]

Address : [REDACTED]

Telephone : ----

Telephone : [REDACTED]

Project : VIC\_0927\_PFASOMP

Date Samples Received : 17-Mar-2023

Order number : -

Date Analysis Commenced : 21-Mar-2023

C-O-C number : 49732

Issue Date : 22-Mar-2023

Sampler : [REDACTED]

Site : GW - OFFSITE

Quote number : SY/139/19\_Laverton

No. of samples received : 8

No. of samples analysed : 8



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.

Table with 3 columns: Signatories, Position, Accreditation Category. Row 1: [REDACTED], Senior Organic Chemist, [REDACTED]



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

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



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

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

Sub-Matrix: WATER

| Method: Compound   | CAS Number  | LOR  | Unit | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |      |                       |  |
|--|-------------|------|------|-----------------------------|---------------------------------------|--------------------|------|-----------------------|--|
|  |             |      |      | Result                      | Spike<br>Concentration                | Spike Recovery (%) |      | Acceptable Limits (%) |  |
|  |             |      |      |                             |                                       | LCS                | Low  | High                  |  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4941692)</b>      |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                       | 375-73-5    | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 85.8               | 72.0 | 130                   |  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                     | 2706-91-4   | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 86.7               | 71.0 | 127                   |  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                      | 355-46-4    | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 86.1               | 68.0 | 131                   |  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                     | 375-92-8    | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 93.7               | 69.0 | 134                   |  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                       | 1763-23-1   | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 87.1               | 65.0 | 140                   |  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                       | 335-77-3    | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 87.0               | 53.0 | 142                   |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4941692)</b>    |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutanoic acid (PFBA)                              | 375-22-4    | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 92.2               | 73.0 | 129                   |  |
| EP231X: Perfluoropentanoic acid (PFPeA)                            | 2706-90-3   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 92.1               | 72.0 | 129                   |  |
| EP231X: Perfluorohexanoic acid (PFHxA)                             | 307-24-4    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 102                | 72.0 | 129                   |  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                            | 375-85-9    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.5               | 72.0 | 130                   |  |
| EP231X: Perfluorooctanoic acid (PFOA)                              | 335-67-1    | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 84.8               | 71.0 | 133                   |  |
| EP231X: Perfluorononanoic acid (PFNA)                              | 375-95-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 97.9               | 69.0 | 130                   |  |
| EP231X: Perfluorodecanoic acid (PFDA)                              | 335-76-2    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 92.8               | 71.0 | 129                   |  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                          | 2058-94-8   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 84.3               | 69.0 | 133                   |  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                          | 307-55-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 107                | 72.0 | 134                   |  |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                         | 72629-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.2               | 65.0 | 144                   |  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                       | 376-06-7    | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 104                | 71.0 | 132                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4941692)</b>        |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                         | 754-91-6    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 99.1               | 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                            | 102                | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)       | 24448-09-7  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 89.4               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)        | 1691-99-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 94.0               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)  | 2355-31-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 98.5               | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)   | 2991-50-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 91.5               | 61.0 | 135                   |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4941692)</b> |             |      |      |                             |                                       |                    |      |                       |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                  | 757124-72-4 | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 87.4               | 63.0 | 143                   |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                  | 27619-97-2  | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 93.4               | 64.0 | 140                   |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                  | 39108-34-4  | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 101                | 67.0 | 138                   |  |



Sub-Matrix: WATER

|  |                        |      |      | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                        |                    |      |                       |
|--|------------------------|------|------|-----------------------------|---------------------------------------|------------------------|--------------------|------|-----------------------|
|  |                        |      |      |                             | Result                                | Spike<br>Concentration | Spike Recovery (%) |      | Acceptable Limits (%) |
| Method: Compound   | CAS Number             | LOR  | Unit |                             |                                       |                        |                    | LCS  | Low                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4941692) - continued</b> |                        |      |      |                             |                                       |                        |                    |      |                       |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                       | 0.242 µg/L                            | 76.5                   | 70.0               | 130  |                       |
| <b>EP231P: PFAS Sums (QCLot: 4941692)</b>                                      |                        |      |      |                             |                                       |                        |                    |      |                       |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |

### Matrix Spike (MS) Report

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

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



## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2304823                 | Page                    | : 1 of 5                           |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : [REDACTED]                       |
| Project      | : VIC_0927_PFASOMP          | Date Samples Received   | : 17-Mar-2023                      |
| Site         | : GW - OFFSITE              | Issue Date              | : 22-Mar-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 8                                |
| Order number | : -                         | No. of samples analysed | : 8                                |

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



### Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

| Quality Control Sample Type<br>Method                | Count |         | Rate (%) |          | Quality Control Specification  |
|--|-------|---------|----------|----------|--------------------------------|
|  | QC    | Regular | Actual   | Expected |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |       |         |          |          |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 0     | 8       | 0.00     | 10.00    | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |       |         |          |          |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 0     | 8       | 0.00     | 5.00     | NEPM 2013 B3 & ALS QC Standard |

### Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW121_230317,<br>0927_MW124_230317,<br>0927_MW229_230317,<br>0927_MW131_230317, | 0927_MW123_230317,<br>0927_MW126_230317,<br>0927_MW130_230317,<br>0927_MW228_230317 | 17-Mar-2023              | 21-Mar-2023        | 13-Sep-2023 | ✔             | 22-Mar-2023      | 13-Sep-2023 | ✔ |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW121_230317,<br>0927_MW124_230317,<br>0927_MW229_230317,<br>0927_MW131_230317, | 0927_MW123_230317,<br>0927_MW126_230317,<br>0927_MW130_230317,<br>0927_MW228_230317 | 17-Mar-2023              | 21-Mar-2023        | 13-Sep-2023 | ✔             | 22-Mar-2023      | 13-Sep-2023 | ✔ |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW121_230317,<br>0927_MW124_230317,<br>0927_MW229_230317,<br>0927_MW131_230317, | 0927_MW123_230317,<br>0927_MW126_230317,<br>0927_MW130_230317,<br>0927_MW228_230317 | 17-Mar-2023              | 21-Mar-2023        | 13-Sep-2023 | ✔             | 22-Mar-2023      | 13-Sep-2023 | ✔ |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>  |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW121_230317,<br>0927_MW124_230317,<br>0927_MW229_230317,<br>0927_MW131_230317, | 0927_MW123_230317,<br>0927_MW126_230317,<br>0927_MW130_230317,<br>0927_MW228_230317 | 17-Mar-2023              | 21-Mar-2023        | 13-Sep-2023 | ✔             | 22-Mar-2023      | 13-Sep-2023 | ✔ |



Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

| Method<br>Container / Client Sample ID(s) | Sample Date        | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|--------------------|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |                    | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231P: PFAS Sums</b>                  |                    |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>            |                    |                          |                    |             |               |                  |             |   |
| 0927_MW121_230317,                        | 0927_MW123_230317, | 17-Mar-2023              | 21-Mar-2023        | 13-Sep-2023 | ✔             | 22-Mar-2023      | 13-Sep-2023 | ✔ |
| 0927_MW124_230317,                        | 0927_MW126_230317, |                          |                    |             |               |                  |             |   |
| 0927_MW229_230317,                        | 0927_MW130_230317, |                          |                    |             |               |                  |             |   |
| 0927_MW131_230317,                        | 0927_MW228_230317  |                          |                    |             |               |                  |             |   |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.




| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 0     | 8       | 0.00     | 10.00    | ✘          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 8       | 12.50    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 8       | 12.50    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 0     | 8       | 0.00     | 5.00     | ✘          | NEPM 2013 B3 & ALS QC Standard |



## Brief Method Summaries

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

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| 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.  |

|   |   |                                 |   |              |
|---|---|---------------------------------|---|--------------|
|  <b>CHAIN OF CUSTODY</b><br>COC#: 49734 ALS Laboratory: EM Melbourne | RELINQUISHED BY:                                | RECEIVED BY:                    | RELINQUISHED BY:  | RECEIVED BY: |
|   | DATE TIME:                                      | DATE TIME:                      | DATE TIME:  | DATE TIME:   |
| CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD  | TURNAROUND REQUIREMENTS: 5 Days                 |                                 | LABORATORY USE ONLY (Circle)                                  |              |
| PROJECT: VIC_0927_PFASOMP   | Biohazard info:                                 | Custody Seal intact? Yes No N/A |   |              |
| SITE: SW - OFFSITE  | CONTACT PH: SAMPLER MOBILE:                     |                                 | Free ice / frozen ice bricks present upon receipt? Yes No N/A |              |
| ORDER NO:   | QUOTE NO: SY/139/19_Laverton / EM2023MWHAUS0002 |                                 | Random Sample Temperature on Receipt: °C                      |              |
| PROJECT MANAGER:   | Other comments:                                 |                                 |   |              |
| PRIMARY SAMPLER:   |   |                                 |   |              |
| EMAIL REPORTS TO:   |   |                                 |   |              |
| EMAIL INVOICES TO:  |   |                                 |   |              |

| SAMPLE DETAILS |                   |             |                     |        |                      |         | ANALYSIS REQUIRED |                      |                        |
|----------------|-------------------|-------------|---------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| SAMPLE         | NAME              | DESCRIPTION | DATE / TIME         | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 001            | 0927_SW012_230321 |             | 21/03/2023 10:23 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 002            | 0927_SW013_230321 |             | 21/03/2023 09:58 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 003            | 0927_SW015_230320 |             | 20/03/2023 01:44 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      | X                 |                      | Internal lab qc        |
| 004            | 0927_SW020_230321 |             | 21/03/2023 09:39 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 005            | 0927_SW024_230321 |             | 21/03/2023 12:51 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 006            | 0927_SW027_230320 |             | 20/03/2023 02:33 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      | X                 |                      | Internal lab qc        |
| 007            | 0927_SW030_230320 |             | 20/03/2023 02:49 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 008            | 0927_SW041_230321 |             | 21/03/2023 11:11 AM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 009            | 0927_SW045_230320 |             | 20/03/2023 03:11 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |

Environmental Division  
 Melbourne  
 Work Order Reference  
**EM2305195**



Telephone : + 61-3-8549 9600



|                  |              |                  |              |
|------------------|--------------|------------------|--------------|
| RELINQUISHED BY: | RECEIVED BY: | RELINQUISHED BY: | RECEIVED BY: |
| DATE TIME:       | DATE TIME:   | DATE TIME:       | DATE TIME:   |

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD  
 PROJECT: VIC\_0927\_PFASOMP  
 SITE: SW - OFFSITE  
 ORDER NO:  
 PROJECT MANAGER: XXXXXXXXXX  
 PRIMARY SAMPLER: XXXXXXXXXX  
 EMAIL REPORTS TO:  
 EMAIL INVOICES TO:

|   |  |
|---|--|
| TURNAROUND REQUIREMENTS : 5 Days                | <b>LABORATORY USE ONLY (Circle)</b><br>Custody Seal intact? Yes No N/A<br>Free ice / frozen ice bricks present upon receipt? Yes No N/A<br>Random Sample Temperature on Receipt: °C<br>Other comments: |
| Biohazard info:                                 |  |
| CONTACT PH: SAMPLER MOBILE:                     |  |
| QUOTE NO: SY/139/19_Laverton / EM2023MWHAUS0002 |  |

| SAMPLE | SAMPLE NAME       | BOTTLE NAME    | VOLUME | BARCODE        | TYPE | FILTERED | REASON |
|--------|-------------------|----------------|--------|----------------|------|----------|--------|
| 001    | 0927_SW012_230321 | HDPE (no PTFE) | 20 mL  | 00350522084366 | Grey | No       |        |
| 001    | 0927_SW012_230321 | HDPE (no PTFE) | 20 mL  | 00350522064757 | Grey | No       |        |
| 002    | 0927_SW013_230321 | HDPE (no PTFE) | 20 mL  | 00350522084326 | Grey | No       |        |
| 002    | 0927_SW013_230321 | HDPE (no PTFE) | 20 mL  | 00350522064625 | Grey | No       |        |
| 003    | 0927_SW015_230320 | HDPE (no PTFE) | 20 mL  | 00350522084054 | Grey | No       |        |
| 003    | 0927_SW015_230320 | HDPE (no PTFE) | 20 mL  | 00350522084116 | Grey | No       |        |
| 003    | 0927_SW015_230320 | HDPE (no PTFE) | 20 mL  | 00350522084247 | Grey | No       |        |
| 003    | 0927_SW015_230320 | HDPE (no PTFE) | 20 mL  | 00350522064781 | Grey | No       |        |
| 003    | 0927_SW015_230320 | HDPE (no PTFE) | 20 mL  | 00350522084114 | Grey | No       |        |
| 003    | 0927_SW015_230320 | HDPE (no PTFE) | 20 mL  | 00350522084328 | Grey | No       |        |
| 004    | 0927_SW020_230321 | HDPE (no PTFE) | 20 mL  | 00350522084138 | Grey | No       |        |
| 004    | 0927_SW020_230321 | HDPE (no PTFE) | 20 mL  | 00350522084252 | Grey | No       |        |
| 005    | 0927_SW024_230321 | HDPE (no PTFE) | 20 mL  | 00350522001729 | Grey | No       |        |
| 005    | 0927_SW024_230321 | HDPE (no PTFE) | 20 mL  | 00350522001739 | Grey | No       |        |
| 006    | 0927_SW027_230320 | HDPE (no PTFE) | 20 mL  | 00350522083770 | Grey | No       |        |
| 006    | 0927_SW027_230320 | HDPE (no PTFE) | 20 mL  | 00350522064725 | Grey | No       |        |
| 006    | 0927_SW027_230320 | HDPE (no PTFE) | 20 mL  | 00350522083936 | Grey | No       |        |
| 006    | 0927_SW027_230320 | HDPE (no PTFE) | 20 mL  | 00350522084129 | Grey | No       |        |
| 006    | 0927_SW027_230320 | HDPE (no PTFE) | 20 mL  | 00350522064733 | Grey | No       |        |
| 006    | 0927_SW027_230320 | HDPE (no PTFE) | 20 mL  | 00350522064756 | Grey | No       |        |
| 007    | 0927_SW030_230320 | HDPE (no PTFE) | 20 mL  | 00350522083821 | Grey | No       |        |
| 007    | 0927_SW030_230320 | HDPE (no PTFE) | 20 mL  | 00350522084183 | Grey | No       |        |
| 008    | 0927_SW041_230321 | HDPE (no PTFE) | 20 mL  | 00350522083733 | Grey | No       |        |
| 008    | 0927_SW041_230321 | HDPE (no PTFE) | 20 mL  | 00350522083954 | Grey | No       |        |
| 009    | 0927_SW045_230320 | HDPE (no PTFE) | 20 mL  | 00350522064648 | Grey | No       |        |
| 009    | 0927_SW045_230320 | HDPE (no PTFE) | 20 mL  | 00350522083740 | Grey | No       |        |



**CHAIN OF CUSTODY**

ALS COC#: 49734 ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: VIC\_0927\_PFSOMP

SITE: SW - OFFSITE

ORDER NO:

PROJECT MANAGER:

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

## LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: C

Other comments:

CONTACT PH:

SAMPLER MOBILE:

QUOTE NO: SY/139/19\_Laverton

/ EM2023MWHAUS000  
2

|     |                   |                |       |                |      |    |  |
|-----|-------------------|----------------|-------|----------------|------|----|--|
| 010 | 0927_SW049_230321 | HDPE (no PTFE) | 20 mL | 00350522083880 | Grey | No |  |
| 010 | 0927_SW049_230321 | HDPE (no PTFE) | 20 mL | 00350522064641 | Grey | No |  |
| 010 | 0927_SW049_230321 | HDPE (no PTFE) | 20 mL | 00350522064793 | Grey | No |  |
| 010 | 0927_SW049_230321 | HDPE (no PTFE) | 20 mL | 00350522084117 | Grey | No |  |
| 010 | 0927_SW049_230321 | HDPE (no PTFE) | 20 mL | 00350522083834 | Grey | No |  |
| 010 | 0927_SW049_230321 | HDPE (no PTFE) | 20 mL | 00350522084139 | Grey | No |  |
| 011 | 0927_SW052_230321 | HDPE (no PTFE) | 20 mL | 00350522084225 | Grey | No |  |
| 011 | 0927_SW052_230321 | HDPE (no PTFE) | 20 mL | 00350522064762 | Grey | No |  |
| 012 | 0927_SW073_230321 | HDPE (no PTFE) | 20 mL | 00350522001731 | Grey | No |  |
| 012 | 0927_SW073_230321 | HDPE (no PTFE) | 20 mL | 00350522001831 | Grey | No |  |
| 013 | 0927_SW078_230321 | HDPE (no PTFE) | 20 mL | 00350522064764 | Grey | No |  |
| 013 | 0927_SW078_230321 | HDPE (no PTFE) | 20 mL | 00350522084059 | Grey | No |  |
| 014 | 0927_SW085_230321 | HDPE (no PTFE) | 20 mL | 00350522084108 | Grey | No |  |
| 014 | 0927_SW085_230321 | HDPE (no PTFE) | 20 mL | 00350522084113 | Grey | No |  |
| 015 | 0927_SW086_230321 | HDPE (no PTFE) | 20 mL | 00350522084178 | Grey | No |  |
| 015 | 0927_SW086_230321 | HDPE (no PTFE) | 20 mL | 00350522064746 | Grey | No |  |
| 016 | 0927_SW087_230322 | HDPE (no PTFE) | 20 mL | 00350522064650 | Grey | No |  |
| 016 | 0927_SW087_230322 | HDPE (no PTFE) | 20 mL | 00350522083894 | Grey | No |  |
| 017 | 0927_SW088_230321 | HDPE (no PTFE) | 20 mL | 00350522001538 | Grey | No |  |
| 017 | 0927_SW088_230321 | HDPE (no PTFE) | 20 mL | 00350522001578 | Grey | No |  |

Total Bottle Count: ALS: 46, Non ALS: 0



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EM2305195

|              |   |              |   |
|--------------|---|--------------|---|
| Client       | : STANTEC AUSTRALIA PTY LTD                                     | Laboratory   | : Environmental Division Melbourne              |
| Contact      | : [REDACTED]  | Contact      | : [REDACTED]                                    |
| Address      | : LEVEL 21 28 FRESHWATER PLACE<br>SOUTHBANK VIC, AUSTRALIA 3006 | Address      | : 4 Westall Rd Springvale VIC Australia<br>3171 |
| E-mail       | : [REDACTED]  | E-mail       | : [REDACTED]                                    |
| Telephone    | : ----  | Telephone    | : +6138549 9609                                 |
| Facsimile    | : ----  | Facsimile    | : +61-3-8549 9626                               |
| Project      | : VIC_0927_PFASOMP  | Page         | : 1 of 3  |
| Order number | : -   | Quote number | : EM2023MWHHAUS0002<br>(SY/139/19_Laverton)     |
| C-O-C number | : 49734   | QC Level     | : NEPM 2013 B3 & ALS QC Standard                |
| Site         | : SW - OFFSITE  |              |   |
| Sampler      | : [REDACTED]  |              |   |

Dates

|                           |                     |                          |                      |
|---------------------------|---------------------|--------------------------|----------------------|
| Date Samples Received     | : 23-Mar-2023 19:35 | Issue Date               | : 24-Mar-2023        |
| Client Requested Due Date | : 31-Mar-2023       | Scheduled Reporting Date | : <b>31-Mar-2023</b> |

Delivery Details

|                      |           |                                    |                       |
|----------------------|-----------|------------------------------------|-----------------------|
| Mode of Delivery     | : Carrier | Security Seal                      | : Not Available       |
| No. of coolers/boxes | : 1       | Temperature                        | : 4.1°C - Ice present |
| Receipt Detail       | :         | No. of samples received / analysed | : 17 / 17             |

General Comments

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



## Sample Container(s)/Preservation Non-Compliances

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

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

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

| Laboratory sample ID | Sampling date / time | Sample ID         | WATER - EP231X<br>PFAS - Full Suite (28 analytes) |
|----------------------|----------------------|-------------------|---|
| EM2305195-001        | 21-Mar-2023 10:23    | 0927_SW012_230321 | ✓   |
| EM2305195-002        | 21-Mar-2023 09:58    | 0927_SW013_230321 | ✓   |
| EM2305195-003        | 20-Mar-2023 13:44    | 0927_SW015_230320 | ✓   |
| EM2305195-004        | 21-Mar-2023 09:39    | 0927_SW020_230321 | ✓   |
| EM2305195-005        | 21-Mar-2023 12:51    | 0927_SW024_230321 | ✓   |
| EM2305195-006        | 20-Mar-2023 14:33    | 0927_SW027_230320 | ✓   |
| EM2305195-007        | 20-Mar-2023 14:49    | 0927_SW030_230320 | ✓   |
| EM2305195-008        | 21-Mar-2023 11:11    | 0927_SW041_230321 | ✓   |
| EM2305195-009        | 20-Mar-2023 15:11    | 0927_SW045_230320 | ✓   |
| EM2305195-010        | 21-Mar-2023 10:45    | 0927_SW049_230321 | ✓   |
| EM2305195-011        | 21-Mar-2023 14:01    | 0927_SW052_230321 | ✓   |
| EM2305195-012        | 21-Mar-2023 09:08    | 0927_SW073_230321 | ✓   |
| EM2305195-013        | 21-Mar-2023 13:12    | 0927_SW078_230321 | ✓   |
| EM2305195-014        | 21-Mar-2023 13:51    | 0927_SW085_230321 | ✓   |
| EM2305195-015        | 21-Mar-2023 14:15    | 0927_SW086_230321 | ✓   |
| EM2305195-016        | 22-Mar-2023 11:03    | 0927_SW087_230322 | ✓   |
| EM2305195-017        | 21-Mar-2023 13:30    | 0927_SW088_230321 | ✓   |

## Proactive Holding Time Report

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



## Requested Deliverables

### ACCOUNTS ADDRESS

|  |       |                                |
|--|-------|--------------------------------|
| - A4 - AU Tax Invoice (INV)                                    | Email | sapinvoices@stantec.com        |
| [REDACTED]   |       |                                |
| [REDACTED] - NATA (COA)  | Email | ankita.mahangade@cardno.com.au |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email | ankita.mahangade@cardno.com.au |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email | ankita.mahangade@cardno.com.au |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | ankita.mahangade@cardno.com.au |
| - Chain of Custody (CoC) (COC)                                 | Email | ankita.mahangade@cardno.com.au |
| - EDI Format - ESDAT (ESDAT)                                   | Email | ankita.mahangade@cardno.com.au |
| - EDI Format - XTab (XTAB)                                     | Email | ankita.mahangade@cardno.com.au |
| [REDACTED]   |       |                                |
| - *AU Certificate of Analysis - NATA (COA)                     | Email | derp.labreports@esdat.com.au   |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email | derp.labreports@esdat.com.au   |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email | derp.labreports@esdat.com.au   |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | derp.labreports@esdat.com.au   |
| - Chain of Custody (CoC) (COC)                                 | Email | derp.labreports@esdat.com.au   |
| - EDI Format - ESDAT (ESDAT)                                   | Email | derp.labreports@esdat.com.au   |
| - EDI Format - XTab (XTAB)                                     | Email | derp.labreports@esdat.com.au   |
| [REDACTED]   |       |                                |
| - *AU Certificate of Analysis - NATA (COA)                     | Email | jeff.li@cardno.com.au          |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email | jeff.li@cardno.com.au          |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email | jeff.li@cardno.com.au          |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | jeff.li@cardno.com.au          |
| - A4 - AU Tax Invoice (INV)                                    | Email | jeff.li@cardno.com.au          |
| - Chain of Custody (CoC) (COC)                                 | Email | jeff.li@cardno.com.au          |
| - EDI Format - ESDAT (ESDAT)                                   | Email | jeff.li@cardno.com.au          |
| - EDI Format - XTab (XTAB)                                     | Email | jeff.li@cardno.com.au          |
| [REDACTED]   |       |                                |
| - *AU Certificate of Analysis - NATA (COA)                     | Email | max.ascione@cardno.com.au      |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email | max.ascione@cardno.com.au      |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email | max.ascione@cardno.com.au      |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | max.ascione@cardno.com.au      |
| - Chain of Custody (CoC) (COC)                                 | Email | max.ascione@cardno.com.au      |
| - EDI Format - ESDAT (ESDAT)                                   | Email | max.ascione@cardno.com.au      |
| - EDI Format - XTab (XTAB)                                     | Email | max.ascione@cardno.com.au      |

## CERTIFICATE OF ANALYSIS

**Work Order** : **EM2305195**  
**Client** : **STANTEC AUSTRALIA PTY LTD**  
**Contact** : [REDACTED]  
**Address** : [REDACTED]  
  
**Telephone** : ----  
**Project** : **VIC\_0927\_PFASOMP**  
**Order number** : -  
**C-O-C number** : **49734**  
**Sampler** : [REDACTED]  
**Site** : **SW - OFFSITE**  
**Quote number** : **SY/139/19\_Laverton**  
**No. of samples received** : **17**  
**No. of samples analysed** : **17**

**Page** : 1 of 11  
**Laboratory** : Environmental Division Melbourne  
**Contact** : [REDACTED]  
**Address** : [REDACTED]  
  
**Telephone** : [REDACTED]  
**Date Samples Received** : **23-Mar-2023 19:35**  
**Date Analysis Commenced** : **27-Mar-2023**  
**Issue Date** : **29-Mar-2023 12:42**



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.

| <i>Signatories</i> | <i>Position</i>        | <i>Accreditation Category</i> |
|--------------------|------------------------|-------------------------------|
| [REDACTED]         | Senior Organic Chemist | [REDACTED]                    |



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Particular samples EM2305195-008, 009, 011 shows minor positive result, confirmed by direct injection method using second container.
- 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: SURFACE WATER<br>(Matrix: WATER)   |            |      |      | Sample ID            | 0927_SW012_230321 | 0927_SW013_230321 | 0927_SW015_230320 | 0927_SW020_230321 | 0927_SW024_230321 |
|--|------------|------|------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  |            |      |      | Sampling date / time | 21-Mar-2023 10:23 | 21-Mar-2023 09:58 | 20-Mar-2023 13:44 | 21-Mar-2023 09:39 | 21-Mar-2023 12:51 |
| Compound                                       | CAS Number | LOR  | Unit | EM2305195-001        | EM2305195-002     | EM2305195-003     | EM2305195-004     | EM2305195-005     |                   |
|  |            |      |      | Result               | Result            | Result            | Result            | Result            |                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.03                 | 0.02              | <0.02             | 0.02              | <0.02             |                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.14                 | 0.15              | 0.01              | 0.14              | 0.12              |                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.10                 | 0.09              | 0.01              | 0.10              | 0.10              |                   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                 | <0.1              | <0.1              | <0.1              | <0.1              |                   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.03                 | 0.03              | <0.02             | 0.03              | 0.03              |                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.01                 | <0.01             | <0.01             | 0.01              | 0.01              |                   |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |



## Analytical Results

Sub-Matrix: SURFACE WATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_SW012_230321 | 0927_SW013_230321 | 0927_SW015_230320 | 0927_SW020_230321 | 0927_SW024_230321 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 21-Mar-2023 10:23 | 21-Mar-2023 09:58 | 20-Mar-2023 13:44 | 21-Mar-2023 09:39 | 21-Mar-2023 12:51 |
| Compound  | CAS Number         | LOR  | Unit | EM2305195-001     | EM2305195-002     | EM2305195-003     | EM2305195-004     | EM2305195-005     |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |
| 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             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |
| 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             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 0.31              | 0.29              | 0.02              | 0.30              | 0.26              |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 0.24              | 0.24              | 0.02              | 0.24              | 0.22              |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 0.31              | 0.29              | 0.02              | 0.30              | 0.26              |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 88.0              | 84.7              | 89.6              | 81.2              | 81.8              |
| 13C8-PFOA   | ----               | 0.02 | %    | 91.3              | 86.6              | 87.6              | 85.1              | 89.3              |





## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)   |            |      |      | Sample ID         | 0927_SW027_230320 | 0927_SW030_230320 | 0927_SW041_230321 | 0927_SW045_230320 | 0927_SW049_230321 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 20-Mar-2023 14:33 | 20-Mar-2023 14:49 | 21-Mar-2023 11:11 | 20-Mar-2023 15:11 | 21-Mar-2023 10:45 |                   |
| Compound                                       | CAS Number | LOR  | Unit | EM2305195-006     | EM2305195-007     | EM2305195-008     | EM2305195-009     | EM2305195-010     |                   |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | 0.03              |                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.10              | 0.05              | 0.01              | 0.01              | 0.12              |                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.47              | 0.04              | <0.01             | <0.01             | 0.12              |                   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |                   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.02              | 0.03              | <0.02             | <0.02             | 0.03              |                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.01              | 0.02              | <0.01             | 0.01              | 0.01              |                   |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |                   |



## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)              |                    |      |      | Sample ID     | 0927_SW027_230320 | 0927_SW030_230320 | 0927_SW041_230321 | 0927_SW045_230320 | 0927_SW049_230321 |
|---|--------------------|------|------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      |               | 20-Mar-2023 14:33 | 20-Mar-2023 14:49 | 21-Mar-2023 11:11 | 20-Mar-2023 15:11 | 21-Mar-2023 10:45 |
| Compound  | CAS Number         | LOR  | Unit | EM2305195-006 | EM2305195-007     | EM2305195-008     | EM2305195-009     | EM2305195-010     |                   |
|   |                    |      |      | Result        | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |               |                   |                   |                   |                   |                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05         | <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             | <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             | <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             | <0.02             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |               |                   |                   |                   |                   |                   |
| 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             | <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             | <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             | <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             | <0.05             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |               |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | <b>0.60</b>   | <b>0.14</b>       | <b>0.01</b>       | <b>0.02</b>       | <b>0.31</b>       |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>0.57</b>   | <b>0.09</b>       | <b>0.01</b>       | <b>0.01</b>       | <b>0.24</b>       |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <b>0.60</b>   | <b>0.14</b>       | <b>0.01</b>       | <b>0.02</b>       | <b>0.31</b>       |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |               |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | <b>81.9</b>   | <b>77.8</b>       | <b>86.4</b>       | <b>89.1</b>       | <b>86.2</b>       |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | <b>87.9</b>   | <b>84.0</b>       | <b>88.3</b>       | <b>87.0</b>       | <b>87.7</b>       |                   |



## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)   |            |      |      | Sample ID            | 0927_SW052_230321 | 0927_SW073_230321 | 0927_SW078_230321 | 0927_SW085_230321 | 0927_SW086_230321 |
|--|------------|------|------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  |            |      |      | Sampling date / time | 21-Mar-2023 14:01 | 21-Mar-2023 09:08 | 21-Mar-2023 13:12 | 21-Mar-2023 13:51 | 21-Mar-2023 14:15 |
| Compound                                       | CAS Number | LOR  | Unit | EM2305195-011        | EM2305195-012     | EM2305195-013     | EM2305195-014     | EM2305195-015     |                   |
|  |            |      |      | Result               | Result            | Result            | Result            | Result            |                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02                | 0.10              | 0.02              | <0.02             | <0.02             |                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                | 0.11              | <0.02             | <0.02             | <0.02             |                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.02                 | 0.87              | 0.17              | 0.04              | 0.04              |                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02                | 0.03              | <0.02             | <0.02             | <0.02             |                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.02                 | 0.43              | 0.24              | 0.02              | 0.04              |                   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                 | <0.1              | <0.1              | <0.1              | <0.1              |                   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                | 0.02              | <0.02             | <0.02             | <0.02             |                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02                | 0.13              | 0.04              | <0.02             | <0.02             |                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01                | 0.02              | 0.02              | <0.01             | <0.01             |                   |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                | <0.02             | <0.02             | <0.02             | <0.02             |                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                | <0.05             | <0.05             | <0.05             | <0.05             |                   |



## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)              |                    |      |      | Sample ID         | 0927_SW052_230321 | 0927_SW073_230321 | 0927_SW078_230321 | 0927_SW085_230321 | 0927_SW086_230321 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 21-Mar-2023 14:01 | 21-Mar-2023 09:08 | 21-Mar-2023 13:12 | 21-Mar-2023 13:51 | 21-Mar-2023 14:15 |                   |
| Compound  | CAS Number         | LOR  | Unit | EM2305195-011     | EM2305195-012     | EM2305195-013     | EM2305195-014     | EM2305195-015     |                   |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | 0.04              | 1.71              | 0.49              | 0.06              | 0.08              |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 0.04              | 1.30              | 0.41              | 0.06              | 0.08              |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 0.04              | 1.57              | 0.49              | 0.06              | 0.08              |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | 80.7              | 89.7              | 87.5              | 83.9              | 90.9              |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | 86.4              | 86.3              | 89.4              | 88.8              | 89.0              |                   |



## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)   |            |      |      | Sample ID         |                   | 0927_SW087_230322 | 0927_SW088_230321 | ----  | ----  | ----  |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------|-------|-------|
| Sampling date / time                           |            |      |      | 22-Mar-2023 11:03 | 21-Mar-2023 13:30 | ----              | ----              | ----  | ----  | ----  |
| Compound                                       | CAS Number | LOR  | Unit | EM2305195-016     | EM2305195-017     | -----             | -----             | ----- | ----- | ----- |
|  |            |      |      | Result            | Result            | ----              | ----              | ----  | ----  | ----  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |       |       |       |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | <b>0.04</b>       | <b>0.04</b>       | ----              | ----              | ----  | ----  | ----  |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | <b>0.05</b>       | <b>0.04</b>       | ----              | ----              | ----  | ----  | ----  |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |       |       |       |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | ----              | ----              | ----  | ----  | ----  |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01             | <0.01             | ----              | ----              | ----  | ----  | ----  |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----              | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |       |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----              | ----  | ----  | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----              | ----  | ----  | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----              | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)              |                    |      |      | Sample ID         | 0927_SW087_230322 | 0927_SW088_230321 | ----  | ----  | ---- |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------|-------|------|
| Sampling date / time                                      |                    |      |      | 22-Mar-2023 11:03 | 21-Mar-2023 13:30 | ----              | ----  | ----  |      |
| Compound  | CAS Number         | LOR  | Unit | EM2305195-016     | EM2305195-017     | -----             | ----- | ----- |      |
|   |                    |      |      | Result            | Result            | ----              | ----  | ----  |      |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |       |       |      |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02             | <0.02             | ----              | ----  | ----  |      |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |       |       |      |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05             | <0.05             | ----              | ----  | ----  |      |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |       |       |      |
| Sum of PFAS   | ----               | 0.01 | µg/L | <b>0.09</b>       | <b>0.08</b>       | ----              | ----  | ----  |      |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>0.09</b>       | <b>0.08</b>       | ----              | ----  | ----  |      |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <b>0.09</b>       | <b>0.08</b>       | ----              | ----  | ----  |      |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |       |       |      |
| 13C4-PFOS   | ----               | 0.02 | %    | <b>79.4</b>       | <b>79.0</b>       | ----              | ----  | ----  |      |
| 13C8-PFOA   | ----               | 0.02 | %    | <b>89.8</b>       | <b>85.6</b>       | ----              | ----  | ----  |      |



### Surrogate Control Limits

| Sub-Matrix: SURFACE WATER     |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |



QUALITY CONTROL REPORT

Work Order : EM2305195

Page : 1 of 7

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Contact : [REDACTED]

Address : [REDACTED]

Address : [REDACTED]

Telephone : ----

Telephone : [REDACTED]

Project : VIC\_0927\_PFASOMP

Date Samples Received : 23-Mar-2023

Order number : -

Date Analysis Commenced : 27-Mar-2023

C-O-C number : 49734

Issue Date : 29-Mar-2023

Sampler : [REDACTED]

Site : SW - OFFSITE

Quote number : SY/139/19\_Laverton

No. of samples received : 17

No. of samples analysed : 17



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.

Table with 3 columns: Signatories, Position, Accreditation Category. Row 1: [REDACTED], Senior Organic Chemist, [REDACTED]





## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

|  |                   |  |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-------------------|--|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID         | Method: Compound                               | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4953701)</b>   |                   |  |            |                                   |      |                 |                  |         |                    |
| EM2305195-003  | 0927_SW015_230320 | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 0.01            | 0.01             | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 0.01            | 0.01             | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| EM2305195-010  | 0927_SW049_230321 | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 0.12            | 0.12             | 0.0     | 0% - 50%           |
|  |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 0.12            | 0.12             | 0.0     | 0% - 50%           |
|  |                   | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | 0.03            | 0.04             | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4953701)</b> |                   |  |            |                                   |      |                 |                  |         |                    |
| EM2305195-003  | 0927_SW015_230320 | EP231X: Perfluorooctanoic acid (PFOA)          | 335-67-1   | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoropentanoic acid (PFPeA)        | 2706-90-3  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorohexanoic acid (PFHxA)         | 307-24-4   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroheptanoic acid (PFHpA)        | 375-85-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorononanoic acid (PFNA)          | 375-95-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorodecanoic acid (PFDA)          | 335-76-2   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)      | 2058-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorododecanoic acid (PFDoDA)      | 307-55-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)     | 72629-94-8 | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotetradecanoic acid (PFTeDA)   | 376-06-7   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorobutanoic acid (PFBA)          | 375-22-4   | 0.1                               | µg/L | <0.1            | <0.1             | 0.0     | No Limit           |



| Sub-Matrix: WATER  |                   |   |             | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-------------------|---|-------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID         | Method: Compound  | CAS Number  | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4953701) - continued</b> |                   |   |             |                                   |      |                 |                  |         |                    |
| EM2305195-010  | 0927_SW049_230321 | EP231X: Perfluorooctanoic acid (PFOA)                             | 335-67-1    | 0.01                              | µg/L | 0.01            | 0.01             | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoropentanoic acid (PFPeA)                           | 2706-90-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorohexanoic acid (PFHxA)                            | 307-24-4    | 0.02                              | µg/L | 0.03            | 0.03             | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroheptanoic acid (PFHpA)                           | 375-85-9    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorononanoic acid (PFNA)                             | 375-95-1    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorodecanoic acid (PFDA)                             | 335-76-2    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)                         | 2058-94-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorododecanoic acid (PFDoDA)                         | 307-55-1    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)                        | 72629-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotetradecanoic acid (PFTeDA)                      | 376-06-7    | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| EP231X: Perfluorobutanoic acid (PFBA)  | 375-22-4          | 0.1   | µg/L        | <0.1                              | <0.1 | 0.0             | No Limit         |         |                    |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4953701)</b>                 |                   |   |             |                                   |      |                 |                  |         |                    |
| EM2305195-003  | 0927_SW015_230320 | 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           |
| EM2305195-010  | 0927_SW049_230321 | 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           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4953701)</b>          |                   |   |             |                                   |      |                 |                  |         |                    |
| EM2305195-003  | 0927_SW015_230320 | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |



| Sub-Matrix: WATER   |                   |   |                    | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|---|-------------------|---|--------------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID  | Sample ID         | Method: Compound                                    | CAS Number         | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4953701) - continued</b> |                   |   |                    |                                   |      |                 |                  |         |                    |
| EM2305195-003   | 0927_SW015_230320 | 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           |
| EM2305195-010   | 0927_SW049_230321 | 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           |
| <b>EP231P: PFAS Sums (QC Lot: 4953701)</b>                                      |                   |   |                    |                                   |      |                 |                  |         |                    |
| EM2305195-003   | 0927_SW015_230320 | EP231X: Sum of PFAS                                 | ----               | 0.01                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|   |                   | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|   |                   | EP231X: Sum of PFAS (WA DER List)                   | ----               | 0.01                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
| EM2305195-010   | 0927_SW049_230321 | EP231X: Sum of PFAS                                 | ----               | 0.01                              | µg/L | 0.31            | 0.32             | 3.2     | 0% - 20%           |
|   |                   | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 0.24            | 0.24             | 0.0     | 0% - 20%           |
|   |                   | EP231X: Sum of PFAS (WA DER List)                   | ----               | 0.01                              | µg/L | 0.31            | 0.32             | 3.2     | 0% - 20%           |



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

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

Sub-Matrix: WATER

| Method: Compound   | CAS Number  | LOR  | Unit | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |                       |      |
|--|-------------|------|------|-----------------------------|---------------------------------------|--------------------|-----------------------|------|
|  |             |      |      | Result                      | Spike<br>Concentration                | Spike Recovery (%) | Acceptable Limits (%) |      |
|  |             |      |      |                             |                                       | LCS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4953701)</b>      |             |      |      |                             |                                       |                    |                       |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                       | 375-73-5    | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 87.4               | 72.0                  | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                     | 2706-91-4   | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 81.9               | 71.0                  | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                      | 355-46-4    | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 92.1               | 68.0                  | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                     | 375-92-8    | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 99.6               | 69.0                  | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                       | 1763-23-1   | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 91.4               | 65.0                  | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                       | 335-77-3    | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 90.1               | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4953701)</b>    |             |      |      |                             |                                       |                    |                       |      |
| EP231X: Perfluorobutanoic acid (PFBA)                              | 375-22-4    | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 83.3               | 73.0                  | 129  |
| EP231X: Perfluoropentanoic acid (PFPeA)                            | 2706-90-3   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.3               | 72.0                  | 129  |
| EP231X: Perfluorohexanoic acid (PFHxA)                             | 307-24-4    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.7               | 72.0                  | 129  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                            | 375-85-9    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 83.5               | 72.0                  | 130  |
| EP231X: Perfluorooctanoic acid (PFOA)                              | 335-67-1    | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 88.9               | 71.0                  | 133  |
| EP231X: Perfluorononanoic acid (PFNA)                              | 375-95-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 83.2               | 69.0                  | 130  |
| EP231X: Perfluorodecanoic acid (PFDA)                              | 335-76-2    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.0               | 71.0                  | 129  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                          | 2058-94-8   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 86.6               | 69.0                  | 133  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                          | 307-55-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.4               | 72.0                  | 134  |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                         | 72629-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 91.6               | 65.0                  | 144  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                       | 376-06-7    | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 103                | 71.0                  | 132  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953701)</b>        |             |      |      |                             |                                       |                    |                       |      |
| EP231X: Perfluorooctane sulfonamide (FOSA)                         | 754-91-6    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 92.1               | 67.0                  | 137  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)              | 31506-32-8  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 110                | 68.0                  | 141  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)               | 4151-50-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 101                | 70.0                  | 130  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)       | 24448-09-7  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 88.2               | 70.0                  | 130  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)        | 1691-99-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 95.4               | 70.0                  | 130  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)  | 2355-31-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.1               | 65.0                  | 136  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)   | 2991-50-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 88.6               | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953701)</b> |             |      |      |                             |                                       |                    |                       |      |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                  | 757124-72-4 | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 88.0               | 63.0                  | 143  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                  | 27619-97-2  | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 94.0               | 64.0                  | 140  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                  | 39108-34-4  | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 96.6               | 67.0                  | 138  |



Sub-Matrix: WATER

| Method: Compound   | CAS Number             | LOR  | Unit | Method Blank (MB) Report<br>Result | Laboratory Control Spike (LCS) Report |                    |                       |      |
|--|------------------------|------|------|------------------------------------|---------------------------------------|--------------------|-----------------------|------|
|  |                        |      |      |                                    | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |      |
|  |                        |      |      |                                    |                                       | LCS                | Low                   | High |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953701) - continued</b> |                        |      |      |                                    |                                       |                    |                       |      |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                              | 0.242 µg/L                            | 71.5               | 70.0                  | 130  |
| <b>EP231P: PFAS Sums (QCLot: 4953701)</b>                                      |                        |      |      |                                    |                                       |                    |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                              | ----                                  | ----               | ----                  | ---- |

### Matrix Spike (MS) Report

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

Sub-Matrix: WATER

| Laboratory sample ID  | Sample ID         | Method: Compound  | CAS Number | Matrix Spike (MS) Report |                   |                       |      |
|---|-------------------|---|------------|--------------------------|-------------------|-----------------------|------|
|   |                   |   |            | Spike Concentration      | Spike Recovery(%) | Acceptable Limits (%) |      |
|   |                   |   |            |                          | MS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4953701)</b>   |                   |   |            |                          |                   |                       |      |
| EM2305195-006   | 0927_SW027_230320 | EP231X: Perfluorobutane sulfonic acid (PFBS)                | 375-73-5   | 0.222 µg/L               | 97.5              | 72.0                  | 130  |
|   |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS)              | 2706-91-4  | 0.235 µg/L               | 82.8              | 71.0                  | 127  |
|   |                   | EP231X: Perfluorohexane sulfonic acid (PFHxS)               | 355-46-4   | 0.228 µg/L               | 91.0              | 68.0                  | 131  |
|   |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS)              | 375-92-8   | 0.238 µg/L               | 95.9              | 69.0                  | 134  |
|   |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)                | 1763-23-1  | 0.232 µg/L               | 114               | 65.0                  | 140  |
|   |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)                | 335-77-3   | 0.241 µg/L               | 81.6              | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4953701)</b> |                   |   |            |                          |                   |                       |      |
| EM2305195-006   | 0927_SW027_230320 | EP231X: Perfluorobutanoic acid (PFBA)                       | 375-22-4   | 1.25 µg/L                | 78.2              | 73.0                  | 129  |
|   |                   | EP231X: Perfluoropentanoic acid (PFPeA)                     | 2706-90-3  | 0.25 µg/L                | 80.1              | 72.0                  | 129  |
|   |                   | EP231X: Perfluorohexanoic acid (PFHxA)                      | 307-24-4   | 0.25 µg/L                | 89.7              | 72.0                  | 129  |
|   |                   | EP231X: Perfluoroheptanoic acid (PFHpA)                     | 375-85-9   | 0.25 µg/L                | 80.8              | 72.0                  | 130  |
|   |                   | EP231X: Perfluorooctanoic acid (PFOA)                       | 335-67-1   | 0.25 µg/L                | 79.5              | 71.0                  | 133  |
|   |                   | EP231X: Perfluorononanoic acid (PFNA)                       | 375-95-1   | 0.25 µg/L                | 84.8              | 69.0                  | 130  |
|   |                   | EP231X: Perfluorodecanoic acid (PFDA)                       | 335-76-2   | 0.25 µg/L                | 82.1              | 71.0                  | 129  |
|   |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)                   | 2058-94-8  | 0.25 µg/L                | 79.0              | 69.0                  | 133  |
|   |                   | EP231X: Perfluorododecanoic acid (PFDoDA)                   | 307-55-1   | 0.25 µg/L                | 82.4              | 72.0                  | 134  |
|   |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)                  | 72629-94-8 | 0.25 µg/L                | 76.6              | 65.0                  | 144  |
|   |                   | EP231X: Perfluorotetradecanoic acid (PFTeDA)                | 376-06-7   | 0.625 µg/L               | 81.1              | 71.0                  | 132  |
|   |                   | <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953701)</b> |            |                          |                   |                       |      |
| EM2305195-006   | 0927_SW027_230320 | EP231X: Perfluorooctane sulfonamide (FOSA)                  | 754-91-6   | 0.25 µg/L                | 84.7              | 67.0                  | 137  |
|   |                   | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)       | 31506-32-8 | 0.625 µg/L               | 84.7              | 68.0                  | 141  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)        | 4151-50-2  | 0.625 µg/L               | 79.4              | 70.0                  | 130  |



Sub-Matrix: WATER

|   |                   |   |             | Matrix Spike (MS) Report |                  |                       |      |
|---|-------------------|---|-------------|--------------------------|------------------|-----------------------|------|
|   |                   |   |             | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID         | Method: Compound  | CAS Number  | Concentration            | MS               | Low                   | High |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4953701) - continued</b> |                   |   |             |                          |                  |                       |      |
| EM2305195-006   | 0927_SW027_230320 | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 76.7             | 70.0                  | 130  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 83.5             | 70.0                  | 130  |
|   |                   | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 87.8             | 65.0                  | 136  |
|   |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 78.0             | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4953701)</b>      |                   |   |             |                          |                  |                       |      |
| EM2305195-006   | 0927_SW027_230320 | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 84.6             | 63.0                  | 143  |
|   |                   | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 91.6             | 64.0                  | 140  |
|   |                   | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 87.6             | 67.0                  | 138  |
|   |                   | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | 71.2             | 70.0                  | 130  |

## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2305195                 | Page                    | : 1 of 5                           |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : [REDACTED]                       |
| Project      | : VIC_0927_PFASOMP          | Date Samples Received   | : 23-Mar-2023                      |
| Site         | : SW - OFFSITE              | Issue Date              | : 29-Mar-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 17                               |
| Order number | : -                         | No. of samples analysed | : 17                               |

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



## Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_230320,<br>0927_SW030_230320,   | 0927_SW027_230320,<br>0927_SW045_230320   | 20-Mar-2023              | 27-Mar-2023        | 16-Sep-2023 | ✓             | 28-Mar-2023      | 16-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_230321,<br>0927_SW020_230321,<br>0927_SW041_230321,<br>0927_SW052_230321,<br>0927_SW078_230321,<br>0927_SW086_230321, | 0927_SW013_230321,<br>0927_SW024_230321,<br>0927_SW049_230321,<br>0927_SW073_230321,<br>0927_SW085_230321,<br>0927_SW088_230321 | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 28-Mar-2023      | 17-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW087_230322  |   | 22-Mar-2023              | 27-Mar-2023        | 18-Sep-2023 | ✓             | 28-Mar-2023      | 18-Sep-2023 | ✓ |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_230320,<br>0927_SW030_230320,   | 0927_SW027_230320,<br>0927_SW045_230320   | 20-Mar-2023              | 27-Mar-2023        | 16-Sep-2023 | ✓             | 28-Mar-2023      | 16-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_230321,<br>0927_SW020_230321,<br>0927_SW041_230321,<br>0927_SW052_230321,<br>0927_SW078_230321,<br>0927_SW086_230321, | 0927_SW013_230321,<br>0927_SW024_230321,<br>0927_SW049_230321,<br>0927_SW073_230321,<br>0927_SW085_230321,<br>0927_SW088_230321 | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 28-Mar-2023      | 17-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW087_230322  |   | 22-Mar-2023              | 27-Mar-2023        | 18-Sep-2023 | ✓             | 28-Mar-2023      | 18-Sep-2023 | ✓ |





Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_230320,<br>0927_SW030_230320,   | 0927_SW027_230320,<br>0927_SW045_230320   | 20-Mar-2023              | 27-Mar-2023        | 16-Sep-2023 | ✓             | 28-Mar-2023      | 16-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_230321,<br>0927_SW020_230321,<br>0927_SW041_230321,<br>0927_SW052_230321,<br>0927_SW078_230321,<br>0927_SW086_230321, | 0927_SW013_230321,<br>0927_SW024_230321,<br>0927_SW049_230321,<br>0927_SW073_230321,<br>0927_SW085_230321,<br>0927_SW088_230321 | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 28-Mar-2023      | 17-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW087_230322  |   | 22-Mar-2023              | 27-Mar-2023        | 18-Sep-2023 | ✓             | 28-Mar-2023      | 18-Sep-2023 | ✓ |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>  |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_230320,<br>0927_SW030_230320,   | 0927_SW027_230320,<br>0927_SW045_230320   | 20-Mar-2023              | 27-Mar-2023        | 16-Sep-2023 | ✓             | 28-Mar-2023      | 16-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_230321,<br>0927_SW020_230321,<br>0927_SW041_230321,<br>0927_SW052_230321,<br>0927_SW078_230321,<br>0927_SW086_230321, | 0927_SW013_230321,<br>0927_SW024_230321,<br>0927_SW049_230321,<br>0927_SW073_230321,<br>0927_SW085_230321,<br>0927_SW088_230321 | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 28-Mar-2023      | 17-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW087_230322  |   | 22-Mar-2023              | 27-Mar-2023        | 18-Sep-2023 | ✓             | 28-Mar-2023      | 18-Sep-2023 | ✓ |
| <b>EP231P: PFAS Sums</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_230320,<br>0927_SW030_230320,   | 0927_SW027_230320,<br>0927_SW045_230320   | 20-Mar-2023              | 27-Mar-2023        | 16-Sep-2023 | ✓             | 28-Mar-2023      | 16-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_230321,<br>0927_SW020_230321,<br>0927_SW041_230321,<br>0927_SW052_230321,<br>0927_SW078_230321,<br>0927_SW086_230321, | 0927_SW013_230321,<br>0927_SW024_230321,<br>0927_SW049_230321,<br>0927_SW073_230321,<br>0927_SW085_230321,<br>0927_SW088_230321 | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 28-Mar-2023      | 17-Sep-2023 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW087_230322  |   | 22-Mar-2023              | 27-Mar-2023        | 18-Sep-2023 | ✓             | 28-Mar-2023      | 18-Sep-2023 | ✓ |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 2     | 17      | 11.76    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 17      | 5.88     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 17      | 5.88     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 17      | 5.88     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |



## Brief Method Summaries

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

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| 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 : **EM2307274**  
Amendment : **2**

Client : **STANTEC AUSTRALIA PTY LTD**  
Contact : [REDACTED]  
[REDACTED] 28 FRESHWATER PLACE  
SOUTHBANK VIC, AUSTRALIA 3006

E-mail : [REDACTED]  
Telephone : ----  
Facsimile : ----

Project : **VIC\_0927\_PFASOMP**  
Order number : ----

C-O-C number : ----  
Site : **DEF19008, RAAF Williams Laverton**  
Sampler :

Laboratory : **Environmental Division Melbourne**  
Address : [REDACTED]  
4 Westall Rd Springvale VIC Australia  
3171

E-mail : [REDACTED]  
Telephone : **+6138549 9609**  
Facsimile : **+61-3-8549 9626**

Page : **1 of 3**  
Quote number : **EM2023MWHHAUS0002**  
(SY/139/19\_Laverton)  
QC Level : **NEPM 2013 B3 & ALS QC Standard**

### Dates

Date Samples Received : **27-Apr-2023 08:52**  
Client Requested Due Date : **05-May-2023**  
Issue Date : **05-May-2023**  
Scheduled Reporting Date : **05-May-2023**

### Delivery Details

Mode of Delivery : **Carrier**  
No. of coolers/boxes : ----  
Receipt Detail :

Security Seal : **Not Available**  
Temperature : ----  
No. of samples received / analysed : **18 / 17**

### General Comments

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



## Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exists.

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: WATER

| Laboratory sample ID | Sampling date / time | Sample ID         | WATER - EP231X<br>PFAS - Full Suite (28 analytes) |
|----------------------|----------------------|-------------------|---|
| EM2307274-001        | 17-Mar-2023 10:33    | 0927_MW124_230317 | ✓   |
| EM2307274-002        | 17-Mar-2023 10:55    | 0927_MW126_230317 | ✓   |
| EM2307274-003        | 17-Mar-2023 11:36    | 0927_MW130_230317 | ✓   |
| EM2307274-004        | 17-Mar-2023 11:35    | 0927_MW131_230317 | ✓   |
| EM2307274-005        | 22-Mar-2023 09:02    | 0927_MW137_230317 | ✓   |
| EM2307274-006        | 21-Mar-2023 10:23    | 0927_SW012_230317 | ✓   |
| EM2307274-007        | 21-Mar-2023 12:51    | 0927_SW024_230317 | ✓   |
| EM2307274-008        | 21-Mar-2023 14:33    | 0927_SW027_230317 | ✓   |
| EM2307274-009        | 21-Mar-2023 14:49    | 0927_SW030_230317 | ✓   |
| EM2307274-010        | 21-Mar-2023 11:20    | 0927_SW041_230317 | ✓   |
| EM2307274-011        | 21-Mar-2023 15:11    | 0927_SW045_230317 | ✓   |
| EM2307274-012        | 21-Mar-2023 13:12    | 0927_SW078_230317 | ✓   |
| EM2307274-013        | 21-Mar-2023 14:01    | 0927_SW052_230317 | ✓   |
| EM2307274-014        | 21-Mar-2023 13:51    | 0927_SW085_230317 | ✓   |
| EM2307274-015        | 21-Mar-2023 14:15    | 0927_SW086_230317 | ✓   |
| EM2307274-016        | 21-Mar-2023 11:03    | 0927_SW087_230317 | ✓   |
| EM2307274-017        | 21-Mar-2023 13:30    | 0927_SW088_230317 | ✓   |
| EM2307274-018        | 21-Mar-2023 13:32    | 0927_QC106_230321 | ✓   |

### Proactive Holding Time Report

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



**Requested Deliverables**

**ACCOUNTS ADDRESS**

- A4 - AU Tax Invoice (INV) Email [sapinvoices@stantec.com](mailto:sapinvoices@stantec.com)

[Redacted] Email [Redacted]  
- \*AU Certificate of Analysis - NATA (COA) Email [Redacted]  
[Redacted]  
[Redacted]  
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## CERTIFICATE OF ANALYSIS

|                         |   |                         |  |
|-------------------------|---|-------------------------|--|
| Work Order              | : EM2307274   | Page                    | : 1 of 13                                    |
| Amendment               | : 2   | Laboratory              | : Environmental Division Melbourne           |
| Client                  | : STANTEC AUSTRALIA PTY LTD                                     | Contact                 | : [REDACTED]                                 |
| Contact                 | : [REDACTED]  | Address                 | : 4 Westall Rd Springvale VIC Australia 3171 |
| Address                 | : LEVEL 21 28 FRESHWATER PLACE<br>SOUTHBANK VIC, AUSTRALIA 3006 | Telephone               | : +6138549 9609                              |
| Telephone               | : ----  | Date Samples Received   | : 27-Apr-2023 08:52                          |
| Project                 | : VIC_0927_PFASOMP  | Date Analysis Commenced | : 27-Mar-2023                                |
| Order number            | : ----  | Issue Date              | : 05-May-2023 10:04                          |
| C-O-C number            | : ----  |                         |  |
| Sampler                 | : ----  |                         |  |
| Site                    | : DEF19008, RAAF Williams Laverton                              |                         |  |
| Quote number            | : SY/139/19_Laverton  |                         |  |
| No. of samples received | : 18  |                         |  |
| No. of samples analysed | : 17  |                         |  |



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

| Signatories | Position            | Accreditation Category              |
|-------------|---------------------|-------------------------------------|
| [REDACTED]  | 2IC Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X - 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 (04/05/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EP231X PFAS Full 28 analyte suite for sample #18 as per client request from Ankita Mahangade .
- 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, PFTTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.





## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW124_230317 | 0927_MW126_230317 | 0927_MW130_230317 | 0927_MW131_230317 | 0927_MW137_230317 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 17-Mar-2023 10:33 | 17-Mar-2023 10:55 | 17-Mar-2023 11:36 | 17-Mar-2023 11:35 | 22-Mar-2023 09:02 |
| Compound                                       | CAS Number | LOR  | Unit | EM2307274-001     | EM2307274-002     | EM2307274-003     | EM2307274-004     | EM2307274-005     |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.06              | 0.08              | 10.7              | 10.1              | 0.09              |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.05              | 0.03              | 14.2              | 15.0              | 0.05              |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.48              | 0.17              | 47.4              | 62.5              | 0.30              |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.02              | <0.02             | 1.27              | 3.40              | <0.02             |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 1.11              | 0.04              | 6.51              | 43.4              | 0.68              |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | 0.9               | 0.9               | <0.1              |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.02              | 0.13              | 4.33              | 4.32              | 0.04              |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.07              | 0.13              | 20.8              | 21.2              | 0.10              |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.02              | 0.03              | 1.91              | 2.08              | <0.02             |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.07              | 0.03              | 2.12              | 3.28              | 0.04              |
| 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             |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID     | 0927_MW124_230317 | 0927_MW126_230317 | 0927_MW130_230317 | 0927_MW131_230317 | 0927_MW137_230317 |
|---|--------------------|------|------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      |               | 17-Mar-2023 10:33 | 17-Mar-2023 10:55 | 17-Mar-2023 11:36 | 17-Mar-2023 11:35 | 22-Mar-2023 09:02 |
| Compound  | CAS Number         | LOR  | Unit | EM2307274-001 | EM2307274-002     | EM2307274-003     | EM2307274-004     | EM2307274-005     | EM2307274-005     |
|   |                    |      |      | Result        | Result            | Result            | Result            | Result            | Result            |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |               |                   |                   |                   |                   |                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05         | <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             | <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             | <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             | <0.02             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |               |                   |                   |                   |                   |                   |
| 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             | <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             | <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             | <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             | <0.05             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |               |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | <b>1.90</b>   | <b>0.64</b>       | <b>110</b>        | <b>166</b>        | <b>1.30</b>       |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>1.59</b>   | <b>0.21</b>       | <b>53.9</b>       | <b>106</b>        | <b>0.98</b>       |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <b>1.83</b>   | <b>0.61</b>       | <b>94.7</b>       | <b>148</b>        | <b>1.25</b>       |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |               |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | <b>83.3</b>   | <b>90.4</b>       | <b>73.1</b>       | <b>86.2</b>       | <b>93.4</b>       |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | <b>78.8</b>   | <b>88.6</b>       | <b>82.6</b>       | <b>81.1</b>       | <b>91.0</b>       |                   |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_SW024_230317 | 0927_SW027_230317 | 0927_SW030_230317 | 0927_SW041_230317 | 0927_SW045_230317 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 21-Mar-2023 12:51 | 21-Mar-2023 14:33 | 21-Mar-2023 14:49 | 21-Mar-2023 11:20 | 21-Mar-2023 15:11 |
| Compound                                       | CAS Number | LOR  | Unit | EM2307274-007     | EM2307274-008     | EM2307274-009     | EM2307274-010     | EM2307274-011     |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | <b>0.12</b>       | <b>0.10</b>       | <b>0.05</b>       | <b>0.01</b>       | <b>0.01</b>       |
| 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 | <b>0.10</b>       | <b>0.47</b>       | <b>0.04</b>       | <0.01             | <0.01             |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <b>0.03</b>       | <b>0.02</b>       | <b>0.03</b>       | <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 | <b>0.01</b>       | <b>0.01</b>       | <b>0.02</b>       | <0.01             | <b>0.01</b>       |
| 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             |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_SW024_230317 | 0927_SW027_230317 | 0927_SW030_230317 | 0927_SW041_230317 | 0927_SW045_230317 |
|---|--------------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      | 21-Mar-2023 12:51 | 21-Mar-2023 14:33 | 21-Mar-2023 14:49 | 21-Mar-2023 11:20 | 21-Mar-2023 15:11 |
| Compound  | CAS Number         | LOR  | Unit | EM2307274-007     | EM2307274-008     | EM2307274-009     | EM2307274-010     | EM2307274-011     |
|   |                    |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                   |                   |                   |                   |
| 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             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                   |                   |                   |                   |
| 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             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | <b>0.26</b>       | <b>0.60</b>       | <b>0.14</b>       | <b>0.01</b>       | <b>0.02</b>       |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>0.22</b>       | <b>0.57</b>       | <b>0.09</b>       | <b>0.01</b>       | <b>0.01</b>       |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <b>0.26</b>       | <b>0.60</b>       | <b>0.14</b>       | <b>0.01</b>       | <b>0.02</b>       |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | <b>81.8</b>       | <b>81.9</b>       | <b>77.8</b>       | <b>86.4</b>       | <b>89.1</b>       |
| 13C8-PFOA   | ----               | 0.02 | %    | <b>89.3</b>       | <b>87.9</b>       | <b>84.0</b>       | <b>88.3</b>       | <b>87.0</b>       |





## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID     | 0927_SW078_230317 | 0927_SW052_230317 | 0927_SW085_230317 | 0927_SW086_230317 | 0927_SW087_230317 |
|---|--------------------|------|------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      |               | 21-Mar-2023 13:12 | 21-Mar-2023 14:01 | 21-Mar-2023 13:51 | 21-Mar-2023 14:15 | 21-Mar-2023 11:03 |
| Compound  | CAS Number         | LOR  | Unit | EM2307274-012 | EM2307274-013     | EM2307274-014     | EM2307274-015     | EM2307274-016     | EM2307274-016     |
|   |                    |      |      | Result        | Result            | Result            | Result            | Result            | Result            |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |               |                   |                   |                   |                   |                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05         | <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             | <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             | <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             | <0.02             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |               |                   |                   |                   |                   |                   |
| 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             | <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             | <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             | <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             | <0.05             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |               |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | <b>0.49</b>   | <b>0.04</b>       | <b>0.06</b>       | <b>0.08</b>       | <b>0.09</b>       | <b>0.09</b>       |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>0.41</b>   | <b>0.04</b>       | <b>0.06</b>       | <b>0.08</b>       | <b>0.09</b>       | <b>0.09</b>       |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <b>0.49</b>   | <b>0.04</b>       | <b>0.06</b>       | <b>0.08</b>       | <b>0.09</b>       | <b>0.09</b>       |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |               |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | <b>87.5</b>   | <b>80.7</b>       | <b>83.9</b>       | <b>90.9</b>       | <b>79.4</b>       | <b>79.4</b>       |
| 13C8-PFOA   | ----               | 0.02 | %    | <b>89.4</b>   | <b>86.4</b>       | <b>88.8</b>       | <b>89.0</b>       | <b>89.8</b>       | <b>89.8</b>       |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)     |            | Sample ID            |      | 0927_SW088_230317 | ----  | ----  | ----  | ----  |
|--|------------|----------------------|------|-------------------|-------|-------|-------|-------|
|  |            | Sampling date / time |      | 21-Mar-2023 13:30 | ----  | ----  | ----  | ----  |
| Compound                                       | CAS Number | LOR                  | Unit | EM2307274-017     | ----- | ----- | ----- | ----- |
|  |            |                      |      | Result            | ---   | ---   | ---   | ---   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |                      |      |                   |       |       |       |       |
| 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 | <b>0.04</b>       | ----  | ----  | ----  | ----  |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02                 | µg/L | <0.02             | ----  | ----  | ----  | ----  |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01                 | µg/L | <b>0.04</b>       | ----  | ----  | ----  | ----  |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02                 | µg/L | <0.02             | ----  | ----  | ----  | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |                      |      |                   |       |       |       |       |
| 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             | ----  | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |                      |      |                   |       |       |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02                 | µg/L | <0.02             | ----  | ----  | ----  | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05                 | µg/L | <0.05             | ----  | ----  | ----  | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05                 | µg/L | <0.05             | ----  | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    | Sample ID            |                   |               |       |       |       |       |
|---|--------------------|----------------------|-------------------|---------------|-------|-------|-------|-------|
|   |                    | 0927_SW088_230317    | ----              | ----          | ----  | ----  | ----  |       |
|   |                    | Sampling date / time | 21-Mar-2023 13:30 |               |       |       |       |       |
| Compound  | CAS Number         | LOR                  | Unit              | EM2307274-017 | ----- | ----- | ----- | ----- |
|   |                    |                      |                   | Result        | ----  | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |                      |                   |               |       |       |       |       |
| 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         | ----  | ----  | ----  | ----  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |                      |                   |               |       |       |       |       |
| 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         | ----  | ----  | ----  | ----  |
| <b>EP231P: PFAS Sums</b>                                  |                    |                      |                   |               |       |       |       |       |
| Sum of PFAS   | ----               | 0.01                 | µg/L              | <b>0.08</b>   | ----  | ----  | ----  | ----  |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01                 | µg/L              | <b>0.08</b>   | ----  | ----  | ----  | ----  |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01                 | µg/L              | <b>0.08</b>   | ----  | ----  | ----  | ----  |
| <b>EP231S: PFAS Surrogate</b>                             |                    |                      |                   |               |       |       |       |       |
| 13C4-PFOS   | ----               | 0.02                 | %                 | <b>79.0</b>   | ----  | ----  | ----  | ----  |
| 13C8-PFOA   | ----               | 0.02                 | %                 | <b>85.6</b>   | ----  | ----  | ----  | ----  |





## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)   |            | Sample ID            |      |               | 0927_QC106_230321 | ----  | ----  | ----  | ----  |
|--|------------|----------------------|------|---------------|-------------------|-------|-------|-------|-------|
|  |            | Sampling date / time |      |               | 21-Mar-2023 13:32 | ----  | ----  | ----  | ----  |
| Compound                                       | CAS Number | LOR                  | Unit | EM2307274-018 | -----             | ----- | ----- | ----- | ----- |
|  |            |                      |      | Result        | ---               | ---   | ---   | ---   | ---   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |                      |      |               |                   |       |       |       |       |
| 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 | <b>0.04</b>   | ----              | ----  | ----  | ----  | ----  |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02                 | µg/L | <0.02         | ----              | ----  | ----  | ----  | ----  |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01                 | µg/L | <b>0.03</b>   | ----              | ----  | ----  | ----  | ----  |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02                 | µg/L | <0.02         | ----              | ----  | ----  | ----  | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |                      |      |               |                   |       |       |       |       |
| 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         | ----              | ----  | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |                      |      |               |                   |       |       |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02                 | µg/L | <0.02         | ----              | ----  | ----  | ----  | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05                 | µg/L | <0.05         | ----              | ----  | ----  | ----  | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05                 | µg/L | <0.05         | ----              | ----  | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)              |                    | Sample ID            | 0927_QC106_230321 |               |       |       |       |       |
|---|--------------------|----------------------|-------------------|---------------|-------|-------|-------|-------|
|   |                    | Sampling date / time | 21-Mar-2023 13:32 |               |       |       |       |       |
| Compound  | CAS Number         | LOR                  | Unit              | EM2307274-018 | ----- | ----- | ----- | ----- |
|   |                    |                      |                   | Result        | ---   | ---   | ---   | ---   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |                      |                   |               |       |       |       |       |
| 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         | ----  | ----  | ----  | ----  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |                      |                   |               |       |       |       |       |
| 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         | ----  | ----  | ----  | ----  |
| <b>EP231P: PFAS Sums</b>                                  |                    |                      |                   |               |       |       |       |       |
| Sum of PFAS   | ----               | 0.01                 | µg/L              | <b>0.07</b>   | ----  | ----  | ----  | ----  |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01                 | µg/L              | <b>0.07</b>   | ----  | ----  | ----  | ----  |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01                 | µg/L              | <b>0.07</b>   | ----  | ----  | ----  | ----  |
| <b>EP231S: PFAS Surrogate</b>                             |                    |                      |                   |               |       |       |       |       |
| 13C4-PFOS   | ----               | 0.02                 | %                 | <b>91.8</b>   | ----  | ----  | ----  | ----  |
| 13C8-PFOA   | ----               | 0.02                 | %                 | <b>93.5</b>   | ----  | ----  | ----  | ----  |



### Surrogate Control Limits

| Sub-Matrix: GROUNDWATER       |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |

| Sub-Matrix: SURFACE WATER     |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |



## QUALITY CONTROL REPORT

Work Order : EM2307274

Page : 1 of 7

Amendment : 2

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : [REDACTED]

Address : LEVEL 21 28 FRESHWATER PLACE  
SOUTHBANK VIC, AUSTRALIA 3006

Address : 4 Westall Rd Springvale VIC Australia 3171

Telephone : ----

Telephone : +6138549 9609

Project : VIC\_0927\_PFASOMP

Date Samples Received : 27-Apr-2023

Order number : ----

Date Analysis Commenced : 27-Mar-2023

C-O-C number : ----

Issue Date : 05-May-2023

Sampler : ----

Site : DEF19008, RAAF Williams Laverton

Quote number : SY/139/19\_Laverton

No. of samples received : 18

No. of samples analysed : 17



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

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

This Quality Control Report contains the following information:

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

### Signatories

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

Signatories

Position

Accreditation Category

[REDACTED]

2IC Organic Chemist

Melbourne Organics, Springvale, VIC



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## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

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



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

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

Sub-Matrix: **WATER**

| Method: Compound  | CAS Number | LOR  | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |                       |      |
|---|------------|------|------|--------------------------|---------------------------------------|--------------------|-----------------------|------|
|   |            |      |      | Result                   | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |      |
|   |            |      |      |                          |                                       | LCS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5016909)</b>   |            |      |      |                          |                                       |                    |                       |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 85.8               | 72.0                  | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 86.7               | 71.0                  | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 86.1               | 68.0                  | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 93.7               | 69.0                  | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 87.1               | 65.0                  | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 87.0               | 53.0                  | 142  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5016915)</b>   |            |      |      |                          |                                       |                    |                       |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 83.2               | 72.0                  | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 92.8               | 71.0                  | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 87.7               | 68.0                  | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 100                | 69.0                  | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 82.4               | 65.0                  | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 76.7               | 53.0                  | 142  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5027836)</b>   |            |      |      |                          |                                       |                    |                       |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 91.4               | 72.0                  | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 105                | 71.0                  | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 98.9               | 68.0                  | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 105                | 69.0                  | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 91.4               | 65.0                  | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 85.7               | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5016909)</b> |            |      |      |                          |                                       |                    |                       |      |
| EP231X: Perfluorobutanoic acid (PFBA)                           | 375-22-4   | 0.1  | µg/L | <0.1                     | 1.25 µg/L                             | 92.2               | 73.0                  | 129  |
| EP231X: Perfluoropentanoic acid (PFPeA)                         | 2706-90-3  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 92.1               | 72.0                  | 129  |
| EP231X: Perfluorohexanoic acid (PFHxA)                          | 307-24-4   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 102                | 72.0                  | 129  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                         | 375-85-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 90.5               | 72.0                  | 130  |
| EP231X: Perfluorooctanoic acid (PFOA)                           | 335-67-1   | 0.01 | µg/L | <0.01                    | 0.25 µg/L                             | 84.8               | 71.0                  | 133  |
| EP231X: Perfluorononanoic acid (PFNA)                           | 375-95-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 97.9               | 69.0                  | 130  |
| EP231X: Perfluorodecanoic acid (PFDA)                           | 335-76-2   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 92.8               | 71.0                  | 129  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                       | 2058-94-8  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 84.3               | 69.0                  | 133  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                       | 307-55-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 107                | 72.0                  | 134  |



Sub-Matrix: WATER

| Method: Compound  | CAS Number | LOR  | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |                       |     |
|---|------------|------|------|--------------------------|---------------------------------------|--------------------|-----------------------|-----|
|   |            |      |      | Result                   | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |     |
|   |            |      |      |                          | LCS                                   | Low                | High                  |     |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5016909) - continued</b> |            |      |      |                          |                                       |                    |                       |     |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                                  | 72629-94-8 | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 95.2               | 65.0                  | 144 |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                                | 376-06-7   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 104                | 71.0                  | 132 |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5016915)</b>             |            |      |      |                          |                                       |                    |                       |     |
| EP231X: Perfluorobutanoic acid (PFBA)                                       | 375-22-4   | 0.1  | µg/L | <0.1                     | 1.25 µg/L                             | 94.9               | 73.0                  | 129 |
| EP231X: Perfluoropentanoic acid (PFPeA)                                     | 2706-90-3  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 90.8               | 72.0                  | 129 |
| EP231X: Perfluorohexanoic acid (PFHxA)                                      | 307-24-4   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 90.7               | 72.0                  | 129 |
| EP231X: Perfluoroheptanoic acid (PFHpA)                                     | 375-85-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 87.5               | 72.0                  | 130 |
| EP231X: Perfluorooctanoic acid (PFOA)                                       | 335-67-1   | 0.01 | µg/L | <0.01                    | 0.25 µg/L                             | 88.6               | 71.0                  | 133 |
| EP231X: Perfluorononanoic acid (PFNA)                                       | 375-95-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 90.0               | 69.0                  | 130 |
| EP231X: Perfluorodecanoic acid (PFDA)                                       | 335-76-2   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 84.5               | 71.0                  | 129 |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                                   | 2058-94-8  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 87.7               | 69.0                  | 133 |
| EP231X: Perfluorododecanoic acid (PFDoDA)                                   | 307-55-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 93.3               | 72.0                  | 134 |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                                  | 72629-94-8 | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 83.3               | 65.0                  | 144 |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                                | 376-06-7   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 112                | 71.0                  | 132 |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5027836)</b>             |            |      |      |                          |                                       |                    |                       |     |
| EP231X: Perfluorobutanoic acid (PFBA)                                       | 375-22-4   | 0.1  | µg/L | <0.1                     | 1.25 µg/L                             | 95.2               | 73.0                  | 129 |
| EP231X: Perfluoropentanoic acid (PFPeA)                                     | 2706-90-3  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 89.4               | 72.0                  | 129 |
| EP231X: Perfluorohexanoic acid (PFHxA)                                      | 307-24-4   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 95.3               | 72.0                  | 129 |
| EP231X: Perfluoroheptanoic acid (PFHpA)                                     | 375-85-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 93.5               | 72.0                  | 130 |
| EP231X: Perfluorooctanoic acid (PFOA)                                       | 335-67-1   | 0.01 | µg/L | <0.01                    | 0.25 µg/L                             | 93.0               | 71.0                  | 133 |
| EP231X: Perfluorononanoic acid (PFNA)                                       | 375-95-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 91.8               | 69.0                  | 130 |
| EP231X: Perfluorodecanoic acid (PFDA)                                       | 335-76-2   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 88.0               | 71.0                  | 129 |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                                   | 2058-94-8  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 105                | 69.0                  | 133 |
| EP231X: Perfluorododecanoic acid (PFDoDA)                                   | 307-55-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 94.1               | 72.0                  | 134 |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                                  | 72629-94-8 | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 90.9               | 65.0                  | 144 |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                                | 376-06-7   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 98.4               | 71.0                  | 132 |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5016909)</b>                 |            |      |      |                          |                                       |                    |                       |     |
| EP231X: Perfluorooctane sulfonamide (FOSA)                                  | 754-91-6   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 99.1               | 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                            | 102                | 70.0                  | 130 |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)                | 24448-09-7 | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 89.4               | 70.0                  | 130 |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)                 | 1691-99-2  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 94.0               | 70.0                  | 130 |



Sub-Matrix: WATER

| Method: Compound  | CAS Number  | LOR  | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |      |                       |  |
|---|-------------|------|------|--------------------------|---------------------------------------|--------------------|------|-----------------------|--|
|   |             |      |      | Result                   | Spike Concentration                   | Spike Recovery (%) |      | Acceptable Limits (%) |  |
|   |             |      |      |                          |                                       | LCS                | Low  | High                  |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5016909) - continued</b> |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)       | 2355-31-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 98.5               | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)        | 2991-50-6   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 91.5               | 61.0 | 135                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5016915)</b>             |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                              | 754-91-6    | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 93.8               | 67.0 | 137                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)                   | 31506-32-8  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 111                | 68.0 | 141                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)                    | 4151-50-2   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 98.4               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)            | 24448-09-7  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 93.1               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)             | 1691-99-2   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 95.6               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)       | 2355-31-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 106                | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)        | 2991-50-6   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 101                | 61.0 | 135                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5027836)</b>             |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                              | 754-91-6    | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 97.5               | 67.0 | 137                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)                   | 31506-32-8  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 110                | 68.0 | 141                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)                    | 4151-50-2   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 102                | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)            | 24448-09-7  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 91.8               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)             | 1691-99-2   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 94.0               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)       | 2355-31-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 96.6               | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)        | 2991-50-6   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 98.0               | 61.0 | 135                   |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5016909)</b>      |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                       | 757124-72-4 | 0.05 | µg/L | <0.05                    | 0.234 µg/L                            | 87.4               | 63.0 | 143                   |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                       | 27619-97-2  | 0.05 | µg/L | <0.05                    | 0.238 µg/L                            | 112                | 64.0 | 140                   |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                       | 39108-34-4  | 0.05 | µg/L | <0.05                    | 0.24 µg/L                             | 101                | 67.0 | 138                   |  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                     | 120226-60-0 | 0.05 | µg/L | <0.05                    | 0.242 µg/L                            | 76.5               | 70.0 | 130                   |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5016915)</b>      |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                       | 757124-72-4 | 0.05 | µg/L | <0.05                    | 0.234 µg/L                            | 91.1               | 63.0 | 143                   |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                       | 27619-97-2  | 0.05 | µg/L | <0.05                    | 0.238 µg/L                            | 119                | 64.0 | 140                   |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                       | 39108-34-4  | 0.05 | µg/L | <0.05                    | 0.24 µg/L                             | 91.0               | 67.0 | 138                   |  |





Sub-Matrix: **WATER**

| Method: Compound   | CAS Number             | LOR  | Unit | Method Blank (MB) Report Result | Laboratory Control Spike (LCS) Report |                    |                       |      |
|--|------------------------|------|------|---------------------------------|---------------------------------------|--------------------|-----------------------|------|
|  |                        |      |      |                                 | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |      |
|  |                        |      |      |                                 |                                       | LCS                | Low                   | High |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5016915) - continued</b> |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                           | 0.242 µg/L                            | 73.6               | 70.0                  | 130  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5027836)</b>             |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                              | 757124-72-4            | 0.05 | µg/L | <0.05                           | 0.234 µg/L                            | 96.3               | 63.0                  | 143  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                              | 27619-97-2             | 0.05 | µg/L | <0.05                           | 0.238 µg/L                            | 96.6               | 64.0                  | 140  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                              | 39108-34-4             | 0.05 | µg/L | <0.05                           | 0.24 µg/L                             | 97.1               | 67.0                  | 138  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                           | 0.242 µg/L                            | 79.2               | 70.0                  | 130  |
| <b>EP231P: PFAS Sums (QCLot: 5016909)</b>                                      |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |
| <b>EP231P: PFAS Sums (QCLot: 5016915)</b>                                      |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |
| <b>EP231P: PFAS Sums (QCLot: 5027836)</b>                                      |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ----               | ----                  | ---- |

### Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

| Laboratory sample ID  | Sample ID         | Method: Compound                               | CAS Number | Matrix Spike (MS) Report |                   |                       |      |
|---|-------------------|--|------------|--------------------------|-------------------|-----------------------|------|
|   |                   |  |            | Spike Concentration      | Spike Recovery(%) | Acceptable Limits (%) |      |
|   |                   |  |            |                          | MS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5016915)</b> |                   |  |            |                          |                   |                       |      |
| EM2307274-008   | 0927_SW027_230317 | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.222 µg/L               | 97.5              | 72.0                  | 130  |
|   |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.235 µg/L               | 82.8              | 71.0                  | 127  |
|   |                   | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.228 µg/L               | 91.0              | 68.0                  | 131  |
|   |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.238 µg/L               | 95.9              | 69.0                  | 134  |
|   |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.232 µg/L               | 114               | 65.0                  | 140  |
|   |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.241 µg/L               | 81.6              | 53.0                  | 142  |



Sub-Matrix: WATER

|  |                   |   |             | Matrix Spike (MS) Report |                   |                       |      |
|--|-------------------|---|-------------|--------------------------|-------------------|-----------------------|------|
|  |                   |   |             | Spike                    | Spike Recovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID   | Sample ID         | Method: Compound  | CAS Number  | Concentration            | MS                | Low                   | High |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5016915)</b>    |                   |   |             |                          |                   |                       |      |
| EM2307274-008  | 0927_SW027_230317 | EP231X: Perfluorobutanoic acid (PFBA)                             | 375-22-4    | 1.25 µg/L                | 78.2              | 73.0                  | 129  |
|  |                   | EP231X: Perfluoropentanoic acid (PFPeA)                           | 2706-90-3   | 0.25 µg/L                | 80.1              | 72.0                  | 129  |
|  |                   | EP231X: Perfluorohexanoic acid (PFHxA)                            | 307-24-4    | 0.25 µg/L                | 89.7              | 72.0                  | 129  |
|  |                   | EP231X: Perfluoroheptanoic acid (PFHpA)                           | 375-85-9    | 0.25 µg/L                | 80.8              | 72.0                  | 130  |
|  |                   | EP231X: Perfluorooctanoic acid (PFOA)                             | 335-67-1    | 0.25 µg/L                | 79.5              | 71.0                  | 133  |
|  |                   | EP231X: Perfluorononanoic acid (PFNA)                             | 375-95-1    | 0.25 µg/L                | 84.8              | 69.0                  | 130  |
|  |                   | EP231X: Perfluorodecanoic acid (PFDA)                             | 335-76-2    | 0.25 µg/L                | 82.1              | 71.0                  | 129  |
|  |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)                         | 2058-94-8   | 0.25 µg/L                | 79.0              | 69.0                  | 133  |
|  |                   | EP231X: Perfluorododecanoic acid (PFDoDA)                         | 307-55-1    | 0.25 µg/L                | 82.4              | 72.0                  | 134  |
|  |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)                        | 72629-94-8  | 0.25 µg/L                | 76.6              | 65.0                  | 144  |
|  |                   | EP231X: Perfluorotetradecanoic acid (PFTeDA)                      | 376-06-7    | 0.625 µg/L               | 81.1              | 71.0                  | 132  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5016915)</b>        |                   |   |             |                          |                   |                       |      |
| EM2307274-008  | 0927_SW027_230317 | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6    | 0.25 µg/L                | 84.7              | 67.0                  | 137  |
|  |                   | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.625 µg/L               | 84.7              | 68.0                  | 141  |
|  |                   | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.625 µg/L               | 79.4              | 70.0                  | 130  |
|  |                   | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 76.7              | 70.0                  | 130  |
|  |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 83.5              | 70.0                  | 130  |
|  |                   | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 87.8              | 65.0                  | 136  |
|  |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 78.0              | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5016915)</b> |                   |   |             |                          |                   |                       |      |
| EM2307274-008  | 0927_SW027_230317 | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 84.6              | 63.0                  | 143  |
|  |                   | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 91.6              | 64.0                  | 140  |
|  |                   | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 100               | 67.0                  | 138  |
|  |                   | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | 71.2              | 70.0                  | 130  |



## QA/QC Compliance Assessment to assist with Quality Review

Work Order : EM2307274

Page : 1 of 6

Amendment : 2

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Telephone : +6138549 9609

Project : VIC\_0927\_PFASOMP

Date Samples Received : 27-Apr-2023

Site : DEF19008, RAAF Williams Laverton

Issue Date : 05-May-2023

Sampler : ----

No. of samples received : 18

Order number : ----

No. of samples analysed : 17

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



### Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

| Quality Control Sample Type                          | Count |         | Rate (%) |          | Quality Control Specification  |
|--|-------|---------|----------|----------|--------------------------------|
|  | QC    | Regular | Actual   | Expected |                                |
| Method   | 0     |         |          |          |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |       |         |          |          |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 0     | 21      | 0.00     | 10.00    | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |       |         |          |          |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 1     | 21      | 4.76     | 5.00     | NEPM 2013 B3 & ALS QC Standard |

### Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date  | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW124_230317,<br>0927_MW130_230317,  | 0927_MW126_230317,<br>0927_MW131_230317  | 17-Mar-2023              | 28-Apr-2023        | 13-Sep-2023 | ✔             | 28-Apr-2023      | 13-Sep-2023 | ✔ |
| HDPE (no PTFE) (EP231X)<br>0927_QC106_230321   |  | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✔             | 27-Mar-2023      | 17-Sep-2023 | ✔ |
| HDPE (no PTFE) (EP231X)<br>0927_SW024_230317,<br>0927_SW030_230317,<br>0927_SW045_230317,<br>0927_SW052_230317,<br>0927_SW086_230317,<br>0927_SW088_230317 | 0927_SW027_230317,<br>0927_SW041_230317,<br>0927_SW078_230317,<br>0927_SW085_230317,<br>0927_SW087_230317, | 21-Mar-2023              | 28-Apr-2023        | 17-Sep-2023 | ✔             | 28-Apr-2023      | 17-Sep-2023 | ✔ |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230317   |  | 22-Mar-2023              | 28-Apr-2023        | 18-Sep-2023 | ✔             | 28-Apr-2023      | 18-Sep-2023 | ✔ |



Matrix: WATER

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date  | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW124_230317,<br>0927_MW130_230317,  | 0927_MW126_230317,<br>0927_MW131_230317  | 17-Mar-2023              | 28-Apr-2023        | 13-Sep-2023 | ✓             | 28-Apr-2023      | 13-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC106_230321   |  | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW024_230317,<br>0927_SW030_230317,<br>0927_SW045_230317,<br>0927_SW052_230317,<br>0927_SW086_230317,<br>0927_SW088_230317 | 0927_SW027_230317,<br>0927_SW041_230317,<br>0927_SW078_230317,<br>0927_SW085_230317,<br>0927_SW087_230317, | 21-Mar-2023              | 28-Apr-2023        | 17-Sep-2023 | ✓             | 28-Apr-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230317   |  | 22-Mar-2023              | 28-Apr-2023        | 18-Sep-2023 | ✓             | 28-Apr-2023      | 18-Sep-2023 | ✓ |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW124_230317,<br>0927_MW130_230317,  | 0927_MW126_230317,<br>0927_MW131_230317  | 17-Mar-2023              | 28-Apr-2023        | 13-Sep-2023 | ✓             | 28-Apr-2023      | 13-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC106_230321   |  | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW024_230317,<br>0927_SW030_230317,<br>0927_SW045_230317,<br>0927_SW052_230317,<br>0927_SW086_230317,<br>0927_SW088_230317 | 0927_SW027_230317,<br>0927_SW041_230317,<br>0927_SW078_230317,<br>0927_SW085_230317,<br>0927_SW087_230317, | 21-Mar-2023              | 28-Apr-2023        | 17-Sep-2023 | ✓             | 28-Apr-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230317   |  | 22-Mar-2023              | 28-Apr-2023        | 18-Sep-2023 | ✓             | 28-Apr-2023      | 18-Sep-2023 | ✓ |



Matrix: WATER Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date  | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>  |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW124_230317,<br>0927_MW130_230317,  | 0927_MW126_230317,<br>0927_MW131_230317  | 17-Mar-2023              | 28-Apr-2023        | 13-Sep-2023 | ✓             | 28-Apr-2023      | 13-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC106_230321   |  | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW024_230317,<br>0927_SW030_230317,<br>0927_SW045_230317,<br>0927_SW052_230317,<br>0927_SW086_230317,<br>0927_SW088_230317 | 0927_SW027_230317,<br>0927_SW041_230317,<br>0927_SW078_230317,<br>0927_SW085_230317,<br>0927_SW087_230317, | 21-Mar-2023              | 28-Apr-2023        | 17-Sep-2023 | ✓             | 28-Apr-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230317   |  | 22-Mar-2023              | 28-Apr-2023        | 18-Sep-2023 | ✓             | 28-Apr-2023      | 18-Sep-2023 | ✓ |
| <b>EP231P: PFAS Sums</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW124_230317,<br>0927_MW130_230317,  | 0927_MW126_230317,<br>0927_MW131_230317  | 17-Mar-2023              | 28-Apr-2023        | 13-Sep-2023 | ✓             | 28-Apr-2023      | 13-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC106_230321   |  | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 27-Mar-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW024_230317,<br>0927_SW030_230317,<br>0927_SW045_230317,<br>0927_SW052_230317,<br>0927_SW086_230317,<br>0927_SW088_230317 | 0927_SW027_230317,<br>0927_SW041_230317,<br>0927_SW078_230317,<br>0927_SW085_230317,<br>0927_SW087_230317, | 21-Mar-2023              | 28-Apr-2023        | 17-Sep-2023 | ✓             | 28-Apr-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW137_230317   |  | 22-Mar-2023              | 28-Apr-2023        | 18-Sep-2023 | ✓             | 28-Apr-2023      | 18-Sep-2023 | ✓ |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 0     | 21      | 0.00     | 10.00    | ✖          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 3     | 21      | 14.29    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 3     | 21      | 14.29    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 21      | 4.76     | 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.

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| 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 : **EM2307379**

|              |                                     |              |   |
|--------------|-------------------------------------|--------------|---|
| Client       | : STANTEC AUSTRALIA PTY LTD         | Laboratory   | : Environmental Division Melbourne      |
| Contact      | : [REDACTED]                        | Address      | : [REDACTED]                            |
|              | : [REDACTED] 21 28 FRESHWATER PLACE |              | : 4 Westall Rd Springvale VIC Australia |
|              | : SOUTHBANK VIC, AUSTRALIA 3006     |              | : 3171                                  |
| E-mail       | : [REDACTED]                        | E-mail       | : [REDACTED]                            |
| Telephone    | : ----                              | Telephone    | : +6138549 9609                         |
| Facsimile    | : ----                              | Facsimile    | : +61-3-8549 9626                       |
| Project      | : VIC_0927_PFASOMP                  | Page         | : 1 of 3                                |
| Order number | : ----                              | Quote number | : EM2023MWHHAUS0002                     |
|              |                                     |              | : (SY/139/19_Laverton)                  |
| C-O-C number | : ----                              | QC Level     | : NEPM 2013 B3 & ALS QC Standard        |
| Site         | : DEF19008, RAAF Williams Laverton  |              |   |
| Sampler      | :                                   |              |   |

### Dates

|                           |                     |                          |                      |
|---------------------------|---------------------|--------------------------|----------------------|
| Date Samples Received     | : 27-Apr-2023 08:52 | Issue Date               | : 28-Apr-2023        |
| Client Requested Due Date | : 28-Apr-2023       | Scheduled Reporting Date | : <b>28-Apr-2023</b> |

### Delivery Details

|                      |           |                                    |                 |
|----------------------|-----------|------------------------------------|-----------------|
| Mode of Delivery     | : Carrier | Security Seal                      | : Not Available |
| No. of coolers/boxes | : ----    | Temperature                        | : ----          |
| Receipt Detail       | :         | No. of samples received / analysed | : 9 / 9         |

### General Comments

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



## Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exists.

### Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

| Laboratory sample ID | Sampling date / time | Sample ID         | WATER - EP231X<br>PFAS - Full Suite (28 analytes) |
|----------------------|----------------------|-------------------|---|
| EM2307379-001        | 17-Apr-2023 00:00    | 0927_MW121_230317 | ✓   |
| EM2307379-002        | 17-Apr-2023 00:00    | 0927_MW123_230317 | ✓   |
| EM2307379-003        | 17-Apr-2023 00:00    | 0927_MW228_230317 | ✓   |
| EM2307379-004        | 17-Apr-2023 00:00    | 0927_MW229_230317 | ✓   |
| EM2307379-005        | 21-Apr-2023 00:00    | 0927_SW013_230317 | ✓   |
| EM2307379-006        | 20-Apr-2023 00:00    | 0927_SW015_230317 | ✓   |
| EM2307379-007        | 21-Apr-2023 00:00    | 0927_SW020_230317 | ✓   |
| EM2307379-008        | 21-Apr-2023 00:00    | 0927_SW049_230317 | ✓   |
| EM2307379-009        | 21-Apr-2023 00:00    | 0927_SW073_230317 | ✓   |

### Proactive Holding Time Report

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





## CERTIFICATE OF ANALYSIS

|                         |   |                         |  |
|-------------------------|---|-------------------------|--|
| Work Order              | : EM2307379   | Page                    | : 1 of 9                                     |
| Amendment               | : 1   | Laboratory              | : Environmental Division Melbourne           |
| Client                  | : STANTEC AUSTRALIA PTY LTD                                     | Contact                 | : [REDACTED]                                 |
| Contact                 | : [REDACTED]  | Address                 | : 4 Westall Rd Springvale VIC Australia 3171 |
| Address                 | : LEVEL 21 28 FRESHWATER PLACE<br>SOUTHBANK VIC, AUSTRALIA 3006 | Telephone               | : +6138549 9609                              |
| Telephone               | : ----  | Date Samples Received   | : 27-Apr-2023 08:52                          |
| Project                 | : VIC_0927_PFASOMP  | Date Analysis Commenced | : 27-Mar-2023                                |
| Order number            | : ----  | Issue Date              | : 04-May-2023 23:18                          |
| C-O-C number            | : ----  |                         |  |
| Sampler                 | : ----  |                         |  |
| Site                    | : DEF19008, RAAF Williams Laverton                              |                         |  |
| Quote number            | : SY/139/19_Laverton  |                         |  |
| No. of samples received | : 11  |                         |  |
| No. of samples analysed | : 11  |                         |  |



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

| Signatories | Position            | Accreditation Category              |
|-------------|---------------------|-------------------------------------|
| [REDACTED]  | 2IC Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X - 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 (04/05/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EP231X PFAS Full 28 analyte suite for sample #10, 11 as requested by Ankita Mahangade.
- 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, PFTTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW121_230317 | 0927_MW123_230317 | 0927_MW228_230317 | 0927_MW229_230317 | 0927_SW013_230317 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 17-Apr-2023 11:37 | 17-Apr-2023 12:34 | 17-Apr-2023 11:20 | 17-Apr-2023 10:13 | 21-Apr-2023 09:58 |
| Compound                                       | CAS Number | LOR  | Unit | EM2307379-001     | EM2307379-002     | EM2307379-003     | EM2307379-004     | EM2307379-005     |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.04              | 0.14              | 0.25              | 0.10              | 0.02              |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.05              | 0.14              | 0.23              | 0.10              | <0.02             |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.46              | 1.18              | 2.01              | 0.93              | 0.15              |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.02              | 0.08              | 0.13              | 0.04              | <0.02             |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.35              | 1.60              | 2.35              | 0.90              | 0.09              |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.02              | 0.05              | 0.07              | 0.03              | <0.02             |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.10              | 0.26              | 0.46              | 0.17              | 0.03              |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02             | 0.03              | 0.05              | <0.02             | <0.02             |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.02              | 0.05              | 0.08              | 0.03              | <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             |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID     | 0927_MW121_230317 | 0927_MW123_230317 | 0927_MW228_230317 | 0927_MW229_230317 | 0927_SW013_230317 |
|---|--------------------|------|------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      |               | 17-Apr-2023 11:37 | 17-Apr-2023 12:34 | 17-Apr-2023 11:20 | 17-Apr-2023 10:13 | 21-Apr-2023 09:58 |
| Compound  | CAS Number         | LOR  | Unit | EM2307379-001 | EM2307379-002     | EM2307379-003     | EM2307379-004     | EM2307379-005     | EM2307379-005     |
|   |                    |      |      | Result        | Result            | Result            | Result            | Result            | Result            |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |               |                   |                   |                   |                   |                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05         | <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             | <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             | <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             | <0.02             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |               |                   |                   |                   |                   |                   |
| 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             | <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             | <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             | <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             | <0.05             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |               |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | <b>1.06</b>   | <b>3.53</b>       | <b>5.63</b>       | <b>2.30</b>       | <b>0.29</b>       | <b>0.29</b>       |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>0.81</b>   | <b>2.78</b>       | <b>4.36</b>       | <b>1.83</b>       | <b>0.24</b>       | <b>0.24</b>       |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <b>0.99</b>   | <b>3.31</b>       | <b>5.27</b>       | <b>2.16</b>       | <b>0.29</b>       | <b>0.29</b>       |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |               |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | <b>80.5</b>   | <b>83.8</b>       | <b>92.1</b>       | <b>87.8</b>       | <b>84.7</b>       | <b>84.7</b>       |
| 13C8-PFOA   | ----               | 0.02 | %    | <b>89.9</b>   | <b>85.6</b>       | <b>88.4</b>       | <b>88.8</b>       | <b>86.6</b>       | <b>86.6</b>       |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_SW015_230317 | 0927_SW020_230317 | 0927_SW049_230317 | 0927_SW073_230317 | 0927_SW012_230321 |
|--|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                           |            |      |      | 20-Apr-2023 13:44 | 21-Apr-2023 09:39 | 21-Apr-2023 10:45 | 21-Apr-2023 09:08 | 21-Mar-2023 10:23 |
| Compound                                       | CAS Number | LOR  | Unit | EM2307379-006     | EM2307379-007     | EM2307379-008     | EM2307379-009     | EM2307379-010     |
|  |            |      |      | Result            | Result            | Result            | Result            | Result            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02             | 0.02              | 0.03              | 0.10              | 0.03              |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | 0.11              | <0.02             |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.01              | 0.14              | 0.12              | 0.87              | 0.14              |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | 0.03              | <0.02             |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.01              | 0.10              | 0.12              | 0.43              | 0.10              |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                   |                   |                   |                   |                   |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | 0.02              | <0.02             |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02             | 0.03              | 0.03              | 0.13              | 0.03              |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01             | 0.01              | 0.01              | 0.02              | 0.01              |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                   |                   |                   |                   |                   |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02             | <0.02             | <0.02             | <0.02             | <0.02             |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |





## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    |      |      | Sample ID     | 0927_SW015_230317 | 0927_SW020_230317 | 0927_SW049_230317 | 0927_SW073_230317 | 0927_SW012_230321 |
|---|--------------------|------|------|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sampling date / time                                      |                    |      |      |               | 20-Apr-2023 13:44 | 21-Apr-2023 09:39 | 21-Apr-2023 10:45 | 21-Apr-2023 09:08 | 21-Mar-2023 10:23 |
| Compound  | CAS Number         | LOR  | Unit | EM2307379-006 | EM2307379-007     | EM2307379-008     | EM2307379-009     | EM2307379-010     |                   |
|   |                    |      |      | Result        | Result            | Result            | Result            | Result            |                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |               |                   |                   |                   |                   |                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05         | <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             | <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             | <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             | <0.02             |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |               |                   |                   |                   |                   |                   |
| 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             | <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             | <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             | <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             | <0.05             |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |               |                   |                   |                   |                   |                   |
| Sum of PFAS   | ----               | 0.01 | µg/L | <b>0.02</b>   | <b>0.30</b>       | <b>0.31</b>       | <b>1.71</b>       | <b>0.31</b>       |                   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>0.02</b>   | <b>0.24</b>       | <b>0.24</b>       | <b>1.30</b>       | <b>0.24</b>       |                   |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | <b>0.02</b>   | <b>0.30</b>       | <b>0.31</b>       | <b>1.57</b>       | <b>0.31</b>       |                   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |               |                   |                   |                   |                   |                   |
| 13C4-PFOS   | ----               | 0.02 | %    | <b>89.6</b>   | <b>81.2</b>       | <b>86.2</b>       | <b>89.7</b>       | <b>88.0</b>       |                   |
| 13C8-PFOA   | ----               | 0.02 | %    | <b>87.6</b>   | <b>85.1</b>       | <b>87.7</b>       | <b>86.3</b>       | <b>91.3</b>       |                   |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)     |            | Sample ID            |      | 0927_QC105_230321 | ----  | ----  | ----  | ----  |
|--|------------|----------------------|------|-------------------|-------|-------|-------|-------|
|  |            | Sampling date / time |      | 21-Mar-2023 09:40 | ----  | ----  | ----  | ----  |
| Compound                                       | CAS Number | LOR                  | Unit | EM2307379-011     | ----- | ----- | ----- | ----- |
|  |            |                      |      | Result            | ---   | ---   | ---   | ---   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |                      |      |                   |       |       |       |       |
| 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 | 0.14              | ----  | ----  | ----  | ----  |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02                 | µg/L | <0.02             | ----  | ----  | ----  | ----  |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01                 | µg/L | 0.12              | ----  | ----  | ----  | ----  |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02                 | µg/L | <0.02             | ----  | ----  | ----  | ----  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |                      |      |                   |       |       |       |       |
| 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 | 0.04              | ----  | ----  | ----  | ----  |
| 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             | ----  | ----  | ----  | ----  |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |                      |      |                   |       |       |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02                 | µg/L | <0.02             | ----  | ----  | ----  | ----  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05                 | µg/L | <0.05             | ----  | ----  | ----  | ----  |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05                 | µg/L | <0.05             | ----  | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: GROUNDWATER<br>(Matrix: WATER)                |                    | Sample ID            | 0927_QC105_230321 |               |     |     |     |     |
|---|--------------------|----------------------|-------------------|---------------|-----|-----|-----|-----|
|   |                    | Sampling date / time | 21-Mar-2023 09:40 |               |     |     |     |     |
| Compound  | CAS Number         | LOR                  | Unit              | EM2307379-011 |     |     |     |     |
|   |                    |                      |                   | Result        | --- | --- | --- | --- |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |                      |                   |               |     |     |     |     |
| 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         | --- | --- | --- | --- |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |                      |                   |               |     |     |     |     |
| 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         | --- | --- | --- | --- |
| <b>EP231P: PFAS Sums</b>                                  |                    |                      |                   |               |     |     |     |     |
| Sum of PFAS   | ---                | 0.01                 | µg/L              | <b>0.35</b>   | --- | --- | --- | --- |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01                 | µg/L              | <b>0.26</b>   | --- | --- | --- | --- |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01                 | µg/L              | <b>0.33</b>   | --- | --- | --- | --- |
| <b>EP231S: PFAS Surrogate</b>                             |                    |                      |                   |               |     |     |     |     |
| 13C4-PFOS   | ---                | 0.02                 | %                 | <b>92.6</b>   | --- | --- | --- | --- |
| 13C8-PFOA   | ---                | 0.02                 | %                 | <b>92.8</b>   | --- | --- | --- | --- |



### Surrogate Control Limits

| Sub-Matrix: GROUNDWATER       |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| 13C4-PFOS                     | ----       | 65                  | 140  |
| 13C8-PFOA                     | ----       | 71                  | 133  |



## QUALITY CONTROL REPORT

**Work Order** : EM2307379 Page : 1 of 7  
**Amendment** : 1

**Client** : STANTEC AUSTRALIA PTY LTD **Laboratory** : Environmental Division Melbourne  
**Contact** : [REDACTED] **Contact** : [REDACTED]  
**Address** : LEVEL 21 28 FRESHWATER PLACE **Address** : 4 Westall Rd Springvale VIC Australia 3171  
SOUTHBANK VIC, AUSTRALIA 3006

**Telephone** : ---- **Telephone** : +6138549 9609  
**Project** : VIC\_0927\_PFASOMP **Date Samples Received** : 27-Apr-2023  
**Order number** : ---- **Date Analysis Commenced** : 27-Mar-2023  
**C-O-C number** : ---- **Issue Date** : 04-May-2023  
**Sampler** : ----

**Site** : DEF19008, RAAF Williams Laverton  
**Quote number** : SY/139/19\_Laverton  
**No. of samples received** : 11  
**No. of samples analysed** : 11



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

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

This Quality Control Report contains the following information:

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

### Signatories

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

| Signatories | Position            | Accreditation Category              |
|-------------|---------------------|-------------------------------------|
| [REDACTED]  | 2IC Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: WATER

|  |                   |   |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-------------------|---|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID         | Method: Compound  | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5016923)</b>   |                   |   |            |                                   |      |                 |                  |         |                    |
| EM2307379-006  | 0927_SW015_230317 | EP231X: Perfluorohexane sulfonic acid (PFHxS)                     | 355-46-4   | 0.01                              | µg/L | 0.01            | 0.01             | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorooctane sulfonic acid (PFOS)                      | 1763-23-1  | 0.01                              | µg/L | 0.01            | 0.01             | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorobutane sulfonic acid (PFBS)                      | 375-73-5   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoropentane sulfonic acid (PFPeS)                    | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroheptane sulfonic acid (PFHpS)                    | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorodecane sulfonic acid (PFDS)                      | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5016923)</b> |                   |   |            |                                   |      |                 |                  |         |                    |
| EM2307379-006  | 0927_SW015_230317 | EP231X: Perfluorooctanoic acid (PFOA)                             | 335-67-1   | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoropentanoic acid (PFPeA)                           | 2706-90-3  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorohexanoic acid (PFHxA)                            | 307-24-4   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroheptanoic acid (PFHpA)                           | 375-85-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorononanoic acid (PFNA)                             | 375-95-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorodecanoic acid (PFDA)                             | 335-76-2   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluoroundecanoic acid (PFUnDA)                         | 2058-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorododecanoic acid (PFDoDA)                         | 307-55-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotridecanoic acid (PFTrDA)                        | 72629-94-8 | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorotetradecanoic acid (PFTeDA)                      | 376-06-7   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |                   | EP231X: Perfluorobutanoic acid (PFBA)                             | 375-22-4   | 0.1                               | µg/L | <0.1            | <0.1             | 0.0     | No Limit           |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5016923)</b>     |                   |   |            |                                   |      |                 |                  |         |                    |
| EM2307379-006  | 0927_SW015_230317 | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |                   | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |



| Sub-Matrix: WATER  |                   |  |                    | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-------------------|--|--------------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID         | Method: Compound   | CAS Number         | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5016923) - continued</b> |                   |  |                    |                                   |      |                 |                  |         |                    |
| EM2307379-006  | 0927_SW015_230317 | 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           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5016923)</b>      |                   |  |                    |                                   |      |                 |                  |         |                    |
| EM2307379-006  | 0927_SW015_230317 | 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           |
| <b>EP231P: PFAS Sums (QC Lot: 5016923)</b>                               |                   |  |                    |                                   |      |                 |                  |         |                    |
| EM2307379-006  | 0927_SW015_230317 | EP231X: Sum of PFAS  | ----               | 0.01                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|  |                   | EP231X: Sum of PFHxS and PFOS                                | 355-46-4/1763-23-1 | 0.01                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|  |                   | EP231X: Sum of PFAS (WA DER List)                            | ----               | 0.01                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |



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

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

Sub-Matrix: **WATER**

| Method: Compound  | CAS Number | LOR  | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                           |                              |      |
|---|------------|------|------|--------------------------|---------------------------------------|---------------------------|------------------------------|------|
|   |            |      |      | Result                   | Spike Concentration                   | Spike Recovery (%)<br>LCS | Acceptable Limits (%)<br>Low | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5016909)</b>   |            |      |      |                          |                                       |                           |                              |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 85.8                      | 72.0                         | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 86.7                      | 71.0                         | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 86.1                      | 68.0                         | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 93.7                      | 69.0                         | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 87.1                      | 65.0                         | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 87.0                      | 53.0                         | 142  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5016923)</b>   |            |      |      |                          |                                       |                           |                              |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 87.4                      | 72.0                         | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 81.9                      | 71.0                         | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 92.1                      | 68.0                         | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 99.6                      | 69.0                         | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 91.4                      | 65.0                         | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 90.1                      | 53.0                         | 142  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5027827)</b>   |            |      |      |                          |                                       |                           |                              |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 87.4                      | 72.0                         | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 81.9                      | 71.0                         | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 92.1                      | 68.0                         | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 99.6                      | 69.0                         | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 91.4                      | 65.0                         | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 90.1                      | 53.0                         | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5016909)</b> |            |      |      |                          |                                       |                           |                              |      |
| EP231X: Perfluorobutanoic acid (PFBA)                           | 375-22-4   | 0.1  | µg/L | <0.1                     | 1.25 µg/L                             | 92.2                      | 73.0                         | 129  |
| EP231X: Perfluoropentanoic acid (PFPeA)                         | 2706-90-3  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 92.1                      | 72.0                         | 129  |
| EP231X: Perfluorohexanoic acid (PFHxA)                          | 307-24-4   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 102                       | 72.0                         | 129  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                         | 375-85-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 90.5                      | 72.0                         | 130  |
| EP231X: Perfluorooctanoic acid (PFOA)                           | 335-67-1   | 0.01 | µg/L | <0.01                    | 0.25 µg/L                             | 84.8                      | 71.0                         | 133  |
| EP231X: Perfluorononanoic acid (PFNA)                           | 375-95-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 97.9                      | 69.0                         | 130  |
| EP231X: Perfluorodecanoic acid (PFDA)                           | 335-76-2   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 92.8                      | 71.0                         | 129  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                       | 2058-94-8  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 84.3                      | 69.0                         | 133  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                       | 307-55-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 107                       | 72.0                         | 134  |





Sub-Matrix: WATER

| Method: Compound  | CAS Number | LOR  | Unit | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |      |                       |  |
|---|------------|------|------|-----------------------------|---------------------------------------|--------------------|------|-----------------------|--|
|   |            |      |      | Result                      | Spike                                 | Spike Recovery (%) |      | Acceptable Limits (%) |  |
|   |            |      |      |                             | Concentration                         | LCS                | Low  | High                  |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5016909) - continued</b> |            |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                                  | 72629-94-8 | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.2               | 65.0 | 144                   |  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                                | 376-06-7   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 104                | 71.0 | 132                   |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5016923)</b>             |            |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutanoic acid (PFBA)                                       | 375-22-4   | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 83.3               | 73.0 | 129                   |  |
| EP231X: Perfluoropentanoic acid (PFPeA)                                     | 2706-90-3  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.3               | 72.0 | 129                   |  |
| EP231X: Perfluorohexanoic acid (PFHxA)                                      | 307-24-4   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.7               | 72.0 | 129                   |  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                                     | 375-85-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 83.5               | 72.0 | 130                   |  |
| EP231X: Perfluorooctanoic acid (PFOA)                                       | 335-67-1   | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 88.9               | 71.0 | 133                   |  |
| EP231X: Perfluorononanoic acid (PFNA)                                       | 375-95-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 83.2               | 69.0 | 130                   |  |
| EP231X: Perfluorodecanoic acid (PFDA)                                       | 335-76-2   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.0               | 71.0 | 129                   |  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                                   | 2058-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 86.6               | 69.0 | 133                   |  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                                   | 307-55-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.4               | 72.0 | 134                   |  |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                                  | 72629-94-8 | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 91.6               | 65.0 | 144                   |  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                                | 376-06-7   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 103                | 71.0 | 132                   |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5027827)</b>             |            |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorobutanoic acid (PFBA)                                       | 375-22-4   | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 83.3               | 73.0 | 129                   |  |
| EP231X: Perfluoropentanoic acid (PFPeA)                                     | 2706-90-3  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.3               | 72.0 | 129                   |  |
| EP231X: Perfluorohexanoic acid (PFHxA)                                      | 307-24-4   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.7               | 72.0 | 129                   |  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                                     | 375-85-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 83.5               | 72.0 | 130                   |  |
| EP231X: Perfluorooctanoic acid (PFOA)                                       | 335-67-1   | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 88.9               | 71.0 | 133                   |  |
| EP231X: Perfluorononanoic acid (PFNA)                                       | 375-95-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 83.2               | 69.0 | 130                   |  |
| EP231X: Perfluorodecanoic acid (PFDA)                                       | 335-76-2   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.0               | 71.0 | 129                   |  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                                   | 2058-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 86.6               | 69.0 | 133                   |  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                                   | 307-55-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.4               | 72.0 | 134                   |  |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                                  | 72629-94-8 | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 91.6               | 65.0 | 144                   |  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                                | 376-06-7   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 103                | 71.0 | 132                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5016909)</b>                 |            |      |      |                             |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                                  | 754-91-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 99.1               | 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                            | 102                | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)                | 24448-09-7 | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 89.4               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)                 | 1691-99-2  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 94.0               | 70.0 | 130                   |  |



Sub-Matrix: WATER

| Method: Compound  | CAS Number  | LOR  | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |      |                       |  |
|---|-------------|------|------|--------------------------|---------------------------------------|--------------------|------|-----------------------|--|
|   |             |      |      | Result                   | Spike Concentration                   | Spike Recovery (%) |      | Acceptable Limits (%) |  |
|   |             |      |      |                          |                                       | LCS                | Low  | High                  |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5016909) - continued</b> |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)       | 2355-31-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 98.5               | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)        | 2991-50-6   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 91.5               | 61.0 | 135                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5016923)</b>             |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                              | 754-91-6    | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 92.1               | 67.0 | 137                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)                   | 31506-32-8  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 110                | 68.0 | 141                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)                    | 4151-50-2   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 101                | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)            | 24448-09-7  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 88.2               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)             | 1691-99-2   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 95.4               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)       | 2355-31-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 96.1               | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)        | 2991-50-6   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 88.6               | 61.0 | 135                   |  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5027827)</b>             |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: Perfluorooctane sulfonamide (FOSA)                              | 754-91-6    | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 92.1               | 67.0 | 137                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)                   | 31506-32-8  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 110                | 68.0 | 141                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)                    | 4151-50-2   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 101                | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)            | 24448-09-7  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 88.2               | 70.0 | 130                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)             | 1691-99-2   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 95.4               | 70.0 | 130                   |  |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)       | 2355-31-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 96.1               | 65.0 | 136                   |  |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)        | 2991-50-6   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 88.6               | 61.0 | 135                   |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5016909)</b>      |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                       | 757124-72-4 | 0.05 | µg/L | <0.05                    | 0.234 µg/L                            | 87.4               | 63.0 | 143                   |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                       | 27619-97-2  | 0.05 | µg/L | <0.05                    | 0.238 µg/L                            | 112                | 64.0 | 140                   |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                       | 39108-34-4  | 0.05 | µg/L | <0.05                    | 0.24 µg/L                             | 101                | 67.0 | 138                   |  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                     | 120226-60-0 | 0.05 | µg/L | <0.05                    | 0.242 µg/L                            | 76.5               | 70.0 | 130                   |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5016923)</b>      |             |      |      |                          |                                       |                    |      |                       |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                       | 757124-72-4 | 0.05 | µg/L | <0.05                    | 0.234 µg/L                            | 88.0               | 63.0 | 143                   |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                       | 27619-97-2  | 0.05 | µg/L | <0.05                    | 0.238 µg/L                            | 94.0               | 64.0 | 140                   |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                       | 39108-34-4  | 0.05 | µg/L | <0.05                    | 0.24 µg/L                             | 96.6               | 67.0 | 138                   |  |



Sub-Matrix: **WATER**

|  |                        |      |      | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                        |                    |      |                       |
|--|------------------------|------|------|-----------------------------|---------------------------------------|------------------------|--------------------|------|-----------------------|
|  |                        |      |      |                             | Result                                | Spike<br>Concentration | Spike Recovery (%) |      | Acceptable Limits (%) |
| Method: Compound   | CAS Number             | LOR  | Unit |                             |                                       |                        |                    | LCS  | Low                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5016923) - continued</b> |                        |      |      |                             |                                       |                        |                    |      |                       |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                       | 0.242 µg/L                            | 71.5                   | 70.0               | 130  |                       |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5027827)</b>             |                        |      |      |                             |                                       |                        |                    |      |                       |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                              | 757124-72-4            | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 88.0                   | 63.0               | 143  |                       |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                              | 27619-97-2             | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 94.0                   | 64.0               | 140  |                       |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                              | 39108-34-4             | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 96.6                   | 67.0               | 138  |                       |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                       | 0.242 µg/L                            | 71.5                   | 70.0               | 130  |                       |
| <b>EP231P: PFAS Sums (QCLot: 5016909)</b>                                      |                        |      |      |                             |                                       |                        |                    |      |                       |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| <b>EP231P: PFAS Sums (QCLot: 5016923)</b>                                      |                        |      |      |                             |                                       |                        |                    |      |                       |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| <b>EP231P: PFAS Sums (QCLot: 5027827)</b>                                      |                        |      |      |                             |                                       |                        |                    |      |                       |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ----                   | ----               | ---- |                       |

### Matrix Spike (MS) Report

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

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



## QA/QC Compliance Assessment to assist with Quality Review

Work Order : EM2307379

Page : 1 of 6

Amendment : 1

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Telephone : +6138549 9609

Project : VIC\_0927\_PFASOMP

Date Samples Received : 27-Apr-2023

Site : DEF19008, RAAF Williams Laverton

Issue Date : 04-May-2023

Sampler : ----

No. of samples received : 11

Order number : ----

No. of samples analysed : 11

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



### Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

| Quality Control Sample Type<br>Method   | Count |         | Rate (%) |          | Quality Control Specification  |
|---|-------|---------|----------|----------|--------------------------------|
|   | QC    | Regular | Actual   | Expected |                                |
| Laboratory Duplicates (DUP)<br>Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 1     | 16      | 6.25     | 10.00    | NEPM 2013 B3 & ALS QC Standard |
| Matrix Spikes (MS)<br>Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS          | 0     | 16      | 0.00     | 5.00     | NEPM 2013 B3 & ALS QC Standard |

### Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                           | Sample Date                             | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>                        |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW121_230317,<br>0927_MW228_230317, | 0927_MW123_230317,<br>0927_MW229_230317 | 17-Apr-2023              | 28-Apr-2023        | 14-Oct-2023 | ✓             | 28-Apr-2023      | 14-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW015_230317                        |   | 20-Apr-2023              | 28-Apr-2023        | 17-Oct-2023 | ✓             | 28-Apr-2023      | 17-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW013_230317,<br>0927_SW049_230317, | 0927_SW020_230317,<br>0927_SW073_230317 | 21-Apr-2023              | 28-Apr-2023        | 18-Oct-2023 | ✓             | 28-Apr-2023      | 18-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321                        |   | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW012_230321                        |   | 21-Mar-2023              | 28-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |



Matrix: WATER

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                           | Sample Date                             | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>                      |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW121_230317,<br>0927_MW228_230317, | 0927_MW123_230317,<br>0927_MW229_230317 | 17-Apr-2023              | 28-Apr-2023        | 14-Oct-2023 | ✓             | 28-Apr-2023      | 14-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW015_230317                        |   | 20-Apr-2023              | 28-Apr-2023        | 17-Oct-2023 | ✓             | 28-Apr-2023      | 17-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW013_230317,<br>0927_SW049_230317, | 0927_SW020_230317,<br>0927_SW073_230317 | 21-Apr-2023              | 28-Apr-2023        | 18-Oct-2023 | ✓             | 28-Apr-2023      | 18-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321                        |   | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW012_230321                        |   | 21-Mar-2023              | 28-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>                          |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW121_230317,<br>0927_MW228_230317, | 0927_MW123_230317,<br>0927_MW229_230317 | 17-Apr-2023              | 28-Apr-2023        | 14-Oct-2023 | ✓             | 28-Apr-2023      | 14-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW015_230317                        |   | 20-Apr-2023              | 28-Apr-2023        | 17-Oct-2023 | ✓             | 28-Apr-2023      | 17-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW013_230317,<br>0927_SW049_230317, | 0927_SW020_230317,<br>0927_SW073_230317 | 21-Apr-2023              | 28-Apr-2023        | 18-Oct-2023 | ✓             | 28-Apr-2023      | 18-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321                        |   | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW012_230321                        |   | 21-Mar-2023              | 28-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>                   |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW121_230317,<br>0927_MW228_230317, | 0927_MW123_230317,<br>0927_MW229_230317 | 17-Apr-2023              | 28-Apr-2023        | 14-Oct-2023 | ✓             | 28-Apr-2023      | 14-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW015_230317                        |   | 20-Apr-2023              | 28-Apr-2023        | 17-Oct-2023 | ✓             | 28-Apr-2023      | 17-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW013_230317,<br>0927_SW049_230317, | 0927_SW020_230317,<br>0927_SW073_230317 | 21-Apr-2023              | 28-Apr-2023        | 18-Oct-2023 | ✓             | 28-Apr-2023      | 18-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321                        |   | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW012_230321                        |   | 21-Mar-2023              | 28-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                           | Sample Date                             | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231P: PFAS Sums</b>  |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW121_230317,<br>0927_MW228_230317, | 0927_MW123_230317,<br>0927_MW229_230317 | 17-Apr-2023              | 28-Apr-2023        | 14-Oct-2023 | ✓             | 28-Apr-2023      | 14-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW015_230317                        |   | 20-Apr-2023              | 28-Apr-2023        | 17-Oct-2023 | ✓             | 28-Apr-2023      | 17-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW013_230317,<br>0927_SW049_230317, | 0927_SW020_230317,<br>0927_SW073_230317 | 21-Apr-2023              | 28-Apr-2023        | 18-Oct-2023 | ✓             | 28-Apr-2023      | 18-Oct-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC105_230321                        |   | 21-Mar-2023              | 27-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_SW012_230321                        |   | 21-Mar-2023              | 28-Mar-2023        | 17-Sep-2023 | ✓             | 04-May-2023      | 17-Sep-2023 | ✓ |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 16      | 6.25     | 10.00    | ✖          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 3     | 16      | 18.75    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 3     | 16      | 18.75    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 0     | 16      | 0.00     | 5.00     | ✖          | NEPM 2013 B3 & ALS QC Standard |





## Brief Method Summaries

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

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Solid Phase Extraction (SPE) for PFAS in water       | ORG72         | WATER         | In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.  |

Chain of Custody

PLEASE FORWARD TO EUROFINS

Sheet 1 of 1

| PM Name: [REDACTED]   |               |                       |                    |                        | Sample Matrix |  | Sample preservation                             |                    |      | Analysis        |  |                       |  |  |  |  |  |  |  |  |
|---|---------------|-----------------------|--------------------|------------------------|---------------|--|---|--------------------|------|-----------------|--|-----------------------|--|--|--|--|--|--|--|--|
| Phone: [REDACTED]   |               | Mobile: [REDACTED]    |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
| Address: [REDACTED]   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
| PM Email: [REDACTED]  |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
| Project Number: DEF19008      Site: 0927 (Laverton)   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
| Laboratory: Eurofins  |               | Recipient: [REDACTED] |                    | Contact no: [REDACTED] |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
| Sample ID   | Laboratory ID | Container             | Sampling           |                        | Water         | Soil   | Ice   | PFAS (28 analytes) | Hold |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       | Date               | Time                   |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
| 0927_QC200_230316   | 1             | 2 x PFAS bottles      | 16/03/2023         | -                      | X             |  |   | X                  |      |                 |  |                       |  |  |  |  |  |  |  |  |
| 0927_QC201_230316   | 2             | 2 x PFAS bottles      | 16/03/2023         | -                      | X             |  |   | X                  |      |                 |  |                       |  |  |  |  |  |  |  |  |
| 0927_QC202_230316   | 3             | 2 x PFAS bottles      | 16/03/2023         | -                      | X             |  |   | X                  |      |                 |  |                       |  |  |  |  |  |  |  |  |
| 0927_QC203_230316   | 4             | 2 x PFAS bottles      | 16/03/2023         | -                      | X             |  |   | X                  |      |                 |  |                       |  |  |  |  |  |  |  |  |
| 0927_QC502_230317   | 5             | 2 x PFAS bottles      | 17/03/2023         | -                      | X             |  |   | X                  |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
|   |               |                       |                    |                        |               |  |   |                    |      |                 |  |                       |  |  |  |  |  |  |  |  |
| Sampler: I attest that the proper field sampling procedures were used during the collection of these samples. |               |                       |                    |                        |               | Sampler name: (print and signature)<br>Jeff Li |   |                    |      |                 |  | Date: 17/03/2023      |  |  |  |  |  |  |  |  |
| Relinquished by (Sampler): (print and signature)<br>Jeff Li   |               |                       | Date<br>17/03/2023 |                        | Time          |  | Received by (print and signature)<br>[REDACTED] |                    |      | Date<br>17/3/23 |  | Time<br>16.25         |  |  |  |  |  |  |  |  |
| Relinquished by: (print and signature)<br>[REDACTED]  |               |                       | Date<br>20/3       |                        | Time          |  | Received by (print and signature)<br>[REDACTED] |                    |      | Date<br>20/3    |  | Time<br>2:55pm on ice |  |  |  |  |  |  |  |  |
| Relinquished by: (print and signature)<br>[REDACTED]  |               |                       | Date               |                        | Time          |  | Received by (print and signature)<br>[REDACTED] |                    |      | Date            |  | Time<br>4-30          |  |  |  |  |  |  |  |  |

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (5 days)

Please circle

#973583  
29  
20/3/23

## Sample Receipt Advice

**Company name:** Stantec Australia Pty Ltd (VIC)  
**Contact name:** [REDACTED]  
**Project name:** 0927 (Laverton)  
**Project ID:** DEF19008  
**Turnaround time:** 5 Day  
**Date/Time received:** Mar 20, 2023 2:55 PM  
**Eurofins reference:** 973583

## Sample Information

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

## Notes

## Contact

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

[REDACTED]

Results will be delivered electronically via email to [REDACTED]

Note: A copy of these results will also be delivered to the general Stantec Australia Pty Ltd (VIC) email address.

Stantec Australia Pty Ltd



NATA Accredited  
Accreditation Number 1261  
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing  
NATA is a signatory to the ILAC Mutual Recognition  
Arrangement for the mutual recognition of the  
equivalence of testing, medical testing, calibration,  
inspection, proficiency testing scheme providers and  
reference materials producers reports and certificates.

Attention:

**Report** 973583-W  
Project name 0927 (Laverton)  
Project ID DEF19008  
Received Date Mar 20, 2023

| Client Sample ID  |      |      | 0927_QC200_2<br>30316 | 0927_QC201_2<br>30316 | 0927_QC202_2<br>30316 | 0927_QC203_2<br>30316 |
|---|------|------|-----------------------|-----------------------|-----------------------|-----------------------|
| Sample Matrix   |      |      | Water                 | Water                 | Water                 | Water                 |
| Eurofins Sample No.   |      |      | M23-<br>Ma0047068     | M23-<br>Ma0047069     | M23-<br>Ma0047070     | M23-<br>Ma0047071     |
| Date Sampled  |      |      | Mar 16, 2023          | Mar 16, 2023          | Mar 16, 2023          | Mar 16, 2023          |
| Test/Reference  | LOR  | Unit |                       |                       |                       |                       |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>                              |      |      |                       |                       |                       |                       |
| Perfluorobutanoic acid (PFBA) <sup>N11</sup>                                | 0.05 | ug/L | 0.33                  | 0.37                  | 2.1                   | < 0.05                |
| Perfluoropentanoic acid (PFPeA) <sup>N11</sup>                              | 0.01 | ug/L | 0.41                  | 0.43                  | 3.0                   | 0.03                  |
| Perfluorohexanoic acid (PFHxA) <sup>N11</sup>                               | 0.01 | ug/L | 2.0                   | 2.0                   | 14                    | 0.10                  |
| Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>                              | 0.01 | ug/L | <sup>N09</sup> 0.31   | <sup>N09</sup> 0.30   | <sup>N09</sup> 2.3    | <sup>N09</sup> 0.01   |
| Perfluorooctanoic acid (PFOA) <sup>N11</sup>                                | 0.01 | ug/L | <sup>N09</sup> 0.28   | <sup>N09</sup> 0.42   | <sup>N09</sup> 5.3    | <sup>N09</sup> 0.02   |
| Perfluorononanoic acid (PFNA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                | < 0.01                | < 1                   | < 0.01                |
| Perfluorodecanoic acid (PFDA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                | < 0.01                | < 1                   | < 0.01                |
| Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluorotridecanoic acid (PFTTrDA) <sup>N15</sup>                          | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>                         | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 13C4-PFBA (surr.)   | 1    | %    | 69                    | 70                    | 148                   | 65                    |
| 13C5-PFPeA (surr.)  | 1    | %    | 109                   | 110                   | 114                   | 79                    |
| 13C5-PFHxA (surr.)  | 1    | %    | 101                   | 105                   | 98                    | 75                    |
| 13C4-PFHpA (surr.)  | 1    | %    | 74                    | 77                    | 95                    | 73                    |
| 13C8-PFOA (surr.)   | 1    | %    | 99                    | 98                    | 100                   | 74                    |
| 13C5-PFNA (surr.)   | 1    | %    | 103                   | 118                   | 100                   | 100                   |
| 13C6-PFDA (surr.)   | 1    | %    | 80                    | 80                    | 113                   | 98                    |
| 13C2-PFUnDA (surr.)   | 1    | %    | 78                    | 84                    | 46                    | 96                    |
| 13C2-PFDoDA (surr.)   | 1    | %    | 73                    | 99                    | 60                    | 95                    |
| 13C2-PFTeDA (surr.)   | 1    | %    | 77                    | 86                    | 68                    | 66                    |
| <b>Perfluoroalkyl sulfonamido substances</b>                                |      |      |                       |                       |                       |                       |
| Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>                           | 0.05 | ug/L | < 0.05                | < 0.05                | <sup>N09</sup> 0.59   | < 0.05                |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>            | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>             | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) <sup>N11</sup> | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) <sup>N11</sup>  | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>    | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>   | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| 13C8-FOSA (surr.)   | 1    | %    | 93                    | 102                   | 94                    | 94                    |
| D3-N-MeFOSA (surr.)   | 1    | %    | 115                   | 115                   | 132                   | 130                   |

| Client Sample ID  |      |      | 0927_QC200_2<br>30316 | 0927_QC201_2<br>30316 | 0927_QC202_2<br>30316 | 0927_QC203_2<br>30316 |
|---|------|------|-----------------------|-----------------------|-----------------------|-----------------------|
| Sample Matrix   |      |      | Water                 | Water                 | Water                 | Water                 |
| Eurofins Sample No.   |      |      | M23-<br>Ma0047068     | M23-<br>Ma0047069     | M23-<br>Ma0047070     | M23-<br>Ma0047071     |
| Date Sampled  |      |      | Mar 16, 2023          | Mar 16, 2023          | Mar 16, 2023          | Mar 16, 2023          |
| Test/Reference  | LOR  | Unit |                       |                       |                       |                       |
| <b>Perfluoroalkyl sulfonamido substances</b>                          |      |      |                       |                       |                       |                       |
| D5-N-EtFOSA (surr.)   | 1    | %    | 108                   | 103                   | 125                   | 120                   |
| D7-N-MeFOSE (surr.)   | 1    | %    | 62                    | 69                    | 64                    | 67                    |
| D9-N-EtFOSE (surr.)   | 1    | %    | 65                    | 75                    | 68                    | 73                    |
| D5-N-EtFOSAA (surr.)  | 1    | %    | 80                    | 136                   | 79                    | 112                   |
| D3-N-MeFOSAA (surr.)  | 1    | %    | 76                    | 118                   | 64                    | 101                   |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                           |      |      |                       |                       |                       |                       |
| Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>                    | 0.01 | ug/L | 0.98                  | 1.2                   | 10                    | 0.09                  |
| Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>                    | 0.01 | ug/L | <sup>N09</sup> 0.09   | <sup>N09</sup> 0.02   | < 1                   | < 0.01                |
| Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>                  | 0.01 | ug/L | 0.56                  | 0.64                  | 5.7                   | 0.04                  |
| Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>                  | 0.01 | ug/L | <sup>N09</sup> 0.77   | <sup>N09</sup> 1.2    | <sup>N09</sup> 11     | <sup>N09</sup> 0.10   |
| Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>                   | 0.01 | ug/L | <sup>N09</sup> 4.9    | <sup>N09</sup> 9.4    | <sup>N09</sup> 80     | <sup>N09</sup> 0.61   |
| Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>                  | 0.01 | ug/L | <sup>N09</sup> 0.26   | <sup>N09</sup> 0.53   | <sup>N09</sup> 5.0    | <sup>N09</sup> 0.02   |
| Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>                    | 0.01 | ug/L | <sup>N09</sup> 11     | <sup>N09</sup> 12     | <sup>N09</sup> 210    | <sup>N09</sup> 0.14   |
| Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                | < 0.01                | < 1                   | < 0.01                |
| 13C3-PFBS (surr.)   | 1    | %    | 100                   | 101                   | 95                    | 84                    |
| 18O2-PFHxS (surr.)  | 1    | %    | 97                    | 92                    | 94                    | 83                    |
| 13C8-PFOS (surr.)   | 1    | %    | 96                    | 104                   | 95                    | 90                    |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>                    |      |      |                       |                       |                       |                       |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) <sup>N11</sup>     | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup> | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 13C2-4:2 FTSA (surr.)   | 1    | %    | 84                    | 98                    | 73                    | 87                    |
| 13C2-6:2 FTSA (surr.)   | 1    | %    | 76                    | 72                    | 58                    | 76                    |
| 13C2-8:2 FTSA (surr.)   | 1    | %    | 88                    | 155                   | 48                    | 102                   |
| 13C2-10:2 FTSA (surr.)  | 1    | %    | 77                    | 194                   | 65                    | 120                   |
| <b>PFASs Summations</b>   |      |      |                       |                       |                       |                       |
| Sum (PFHxS + PFOS)*   | 0.01 | ug/L | 15.9                  | 21.4                  | 290                   | 0.75                  |
| Sum of US EPA PFAS (PFOS + PFOA)*                                     | 0.01 | ug/L | 11.28                 | 12.42                 | 215.3                 | 0.16                  |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                           | 0.01 | ug/L | 16.18                 | 21.82                 | 295.3                 | 0.77                  |
| Sum of WA DWER PFAS (n=10)*   | 0.05 | ug/L | 20.21                 | 26.12                 | 326.7                 | 1                     |
| Sum of PFASs (n=30)*  | 0.1  | ug/L | 21.89                 | 28.51                 | 348.99                | 1.16                  |

|   |      |      |                               |
|---|------|------|-------------------------------|
| <b>Client Sample ID</b>   |      |      | <b>0927_QC502_2<br/>30317</b> |
| <b>Sample Matrix</b>  |      |      | <b>Water</b>                  |
| <b>Eurofins Sample No.</b>  |      |      | <b>M23-<br/>Ma0047072</b>     |
| <b>Date Sampled</b>   |      |      | <b>Mar 17, 2023</b>           |
| Test/Reference  | LOR  | Unit |                               |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>                              |      |      |                               |
| Perfluorobutanoic acid (PFBA) <sup>N11</sup>                                | 0.05 | ug/L | < 0.05                        |
| Perfluoropentanoic acid (PFPeA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01                        |
| Perfluorohexanoic acid (PFHxA) <sup>N11</sup>                               | 0.01 | ug/L | < 0.01                        |
| Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01                        |
| Perfluorooctanoic acid (PFOA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                        |
| Perfluorononanoic acid (PFNA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                        |
| Perfluorodecanoic acid (PFDA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                        |
| Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                        |
| Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                        |
| Perfluorotridecanoic acid (PFTrDA) <sup>N15</sup>                           | 0.01 | ug/L | < 0.01                        |
| Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>                         | 0.01 | ug/L | < 0.01                        |
| 13C4-PFBA (surr.)   | 1    | %    | 73                            |
| 13C5-PFPeA (surr.)  | 1    | %    | 77                            |
| 13C5-PFHxA (surr.)  | 1    | %    | 73                            |
| 13C4-PFHpA (surr.)  | 1    | %    | 71                            |
| 13C8-PFOA (surr.)   | 1    | %    | 72                            |
| 13C5-PFNA (surr.)   | 1    | %    | 99                            |
| 13C6-PFDA (surr.)   | 1    | %    | 93                            |
| 13C2-PFUnDA (surr.)   | 1    | %    | 67                            |
| 13C2-PFDoDA (surr.)   | 1    | %    | 72                            |
| 13C2-PFTeDA (surr.)   | 1    | %    | 78                            |
| <b>Perfluoroalkyl sulfonamido substances</b>                                |      |      |                               |
| Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>                           | 0.05 | ug/L | < 0.05                        |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>            | 0.05 | ug/L | < 0.05                        |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>             | 0.05 | ug/L | < 0.05                        |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) <sup>N11</sup> | 0.05 | ug/L | < 0.05                        |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) <sup>N11</sup>  | 0.05 | ug/L | < 0.05                        |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>    | 0.05 | ug/L | < 0.05                        |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>   | 0.05 | ug/L | < 0.05                        |
| 13C8-FOSA (surr.)   | 1    | %    | 93                            |
| D3-N-MeFOSA (surr.)   | 1    | %    | 112                           |
| D5-N-EtFOSA (surr.)   | 1    | %    | 107                           |
| D7-N-MeFOSE (surr.)   | 1    | %    | 67                            |
| D9-N-EtFOSE (surr.)   | 1    | %    | 71                            |
| D5-N-EtFOSAA (surr.)  | 1    | %    | 88                            |
| D3-N-MeFOSAA (surr.)  | 1    | %    | 82                            |
| <b>Perfluoroalkyl sulfonic acids (PFSAs)</b>                                |      |      |                               |
| Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>                          | 0.01 | ug/L | < 0.01                        |
| Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>                          | 0.01 | ug/L | < 0.01                        |
| Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>                        | 0.01 | ug/L | < 0.01                        |
| Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>                        | 0.01 | ug/L | < 0.01                        |
| Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>                         | 0.01 | ug/L | < 0.01                        |
| Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>                        | 0.01 | ug/L | < 0.01                        |
| Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>                          | 0.01 | ug/L | < 0.01                        |
| Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>                          | 0.01 | ug/L | < 0.01                        |

|   |      |      |                               |
|---|------|------|-------------------------------|
| <b>Client Sample ID</b>   |      |      | <b>0927_QC502_2<br/>30317</b> |
| <b>Sample Matrix</b>  |      |      | <b>Water</b>                  |
| <b>Eurofins Sample No.</b>  |      |      | <b>M23-<br/>Ma0047072</b>     |
| <b>Date Sampled</b>   |      |      | <b>Mar 17, 2023</b>           |
| Test/Reference  | LOR  | Unit |                               |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                          |      |      |                               |
| 13C3-PFBS (surr.)   | 1    | %    | 83                            |
| 18O2-PFHxS (surr.)  | 1    | %    | 87                            |
| 13C8-PFOS (surr.)   | 1    | %    | 84                            |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>                    |      |      |                               |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                        |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) <sup>N11</sup>     | 0.05 | ug/L | < 0.05                        |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                        |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup> | 0.01 | ug/L | < 0.01                        |
| 13C2-4:2 FTSA (surr.)   | 1    | %    | 63                            |
| 13C2-6:2 FTSA (surr.)   | 1    | %    | 75                            |
| 13C2-8:2 FTSA (surr.)   | 1    | %    | 82                            |
| 13C2-10:2 FTSA (surr.)  | 1    | %    | 80                            |
| <b>PFASs Summations</b>   |      |      |                               |
| Sum (PFHxS + PFOS)*   | 0.01 | ug/L | < 0.01                        |
| Sum of US EPA PFAS (PFOS + PFOA)*                                     | 0.01 | ug/L | < 0.01                        |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                           | 0.01 | ug/L | < 0.01                        |
| Sum of WA DWER PFAS (n=10)*   | 0.05 | ug/L | < 0.05                        |
| Sum of PFASs (n=30)*  | 0.1  | ug/L | < 0.1                         |

**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

| Description   | Testing Site | Extracted    | Holding Time |
|---|--------------|--------------|--------------|
| Per- and Polyfluoroalkyl Substances (PFASs)                       |              |              |              |
| Perfluoroalkyl carboxylic acids (PFCAs)                           | Melbourne    | Mar 21, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonamido substances                             | Melbourne    | Mar 21, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonic acids (PFSAs)                             | Melbourne    | Mar 21, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)                      | Melbourne    | Mar 21, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| PFASs Summations  | Melbourne    | Mar 20, 2023 |              |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |



|                  |                |               |                 |                 |                  |              |                 |                     |
|------------------|----------------|---------------|-----------------|-----------------|------------------|--------------|-----------------|---------------------|
| <b>Melbourne</b> | <b>Geelong</b> | <b>Sydney</b> | <b>Canberra</b> | <b>Brisbane</b> | <b>Newcastle</b> | <b>Perth</b> | <b>Auckland</b> | <b>Christchurch</b> |
| [Redacted]       | [Redacted]     | [Redacted]    | [Redacted]      | [Redacted]      | [Redacted]       | [Redacted]   | [Redacted]      | [Redacted]          |
|                  |                | 3             |                 |                 | 4                |              |                 |                     |

**Company Name:** Stantec Australia Pty Ltd (VIC)  
**Address:** [Redacted]  
[Redacted]  
[Redacted]

**Order No.:**  
**Report #:** 973583  
**Phone:**  
**Fax:**

**Received:** Mar 20, 2023 2:55 PM  
**Due:** Mar 27, 2023  
**Priority:** 5 Day  
**Contact Name:** [Redacted]

**Project Name:** 0927 (Laverton)  
**Project ID:** DEF19008

**Eurofins Analytical Services Manager :** [Redacted]

| <b>Sample Detail</b>                           |                   |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|-------------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                   |              |               |        |               |   |
| External Laboratory                            |                   |              |               |        |               |   |
| No   | Sample ID         | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | 0927_QC200_230316 | Mar 16, 2023 |               | Water  | M23-Ma0047068 | X   |
| 2  | 0927_QC201_230316 | Mar 16, 2023 |               | Water  | M23-Ma0047069 | X   |
| 3  | 0927_QC202_230316 | Mar 16, 2023 |               | Water  | M23-Ma0047070 | X   |
| 4  | 0927_QC203_230316 | Mar 16, 2023 |               | Water  | M23-Ma0047071 | X   |
| 5  | 0927_QC502_230317 | Mar 17, 2023 |               | Water  | M23-Ma0047072 | X   |
| <b>Test Counts</b>                             |                   |              |               |        |               | 5   |

**Internal Quality Control Review and Glossary**
**General**

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

**Holding Times**

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**Units**

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**µg/L:** micrograms per litre

**ppm:** parts per million

**ppb:** parts per billion

**%:** Percentage

**org/100 mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres

**CFU:** Colony forming unit

**Terms**

|                         |   |
|-------------------------|---|
| <b>APHA</b>             | American Public Health Association  |
| <b>COC</b>              | Chain of Custody  |
| <b>CP</b>               | Client Parent - QC was performed on samples pertaining to this report   |
| <b>CRM</b>              | Certified Reference Material (ISO17034) - reported as percent recovery.   |
| <b>Dry</b>              | Where a moisture has been determined on a solid sample the result is expressed on a dry basis.  |
| <b>Duplicate</b>        | A second piece of analysis from the same sample and reported in the same units as the result to show comparison.  |
| <b>LOR</b>              | Limit of Reporting.   |
| <b>LCS</b>              | Laboratory Control Sample - reported as percent recovery.   |
| <b>Method Blank</b>     | In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.  |
| <b>NCP</b>              | Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.  |
| <b>RPD</b>              | Relative Percent Difference between two Duplicate pieces of analysis.   |
| <b>SPIKE</b>            | Addition of the analyte to the sample and reported as percentage recovery.  |
| <b>SRA</b>              | Sample Receipt Advice   |
| <b>Surr - Surrogate</b> | The addition of a like compound to the analyte target and reported as percentage recovery.  |
| <b>TBTO</b>             | Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| <b>TCLP</b>             | Toxicity Characteristic Leaching Procedure  |
| <b>TEQ</b>              | Toxic Equivalency Quotient or Total Equivalence   |
| <b>QSM</b>              | US Department of Defense Quality Systems Manual Version 5.4   |
| <b>US EPA</b>           | United States Environmental Protection Agency   |
| <b>WA DWER</b>          | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA   |

**QC - Acceptance Criteria**

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

**QC Data General Comments**

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

**Quality Control Results**

| Test   | Units | Result 1 |  | Acceptance Limits | Pass Limits | Qualifying Code |
|--|-------|----------|--|-------------------|-------------|-----------------|
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |       |          |  |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                 |       |          |  |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |       |          |  |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>LCS - % Recovery</b>                                      |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | %     | 111      |  | 50-150            | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | %     | 96       |  | 50-150            | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | %     | 92       |  | 50-150            | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | %     | 86       |  | 50-150            | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | %     | 88       |  | 50-150            | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | %     | 83       |  | 50-150            | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | %     | 89       |  | 50-150            | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | %     | 92       |  | 50-150            | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | %     | 89       |  | 50-150            | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | %     | 120      |  | 50-150            | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | %     | 95       |  | 50-150            | Pass        |                 |

| Test   | Units         | Result 1  |       |          | Acceptance Limits | Pass Limits       | Qualifying Code |                 |
|--|---------------|-----------|-------|----------|-------------------|-------------------|-----------------|-----------------|
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | %             | 92        |       |          | 50-150            | Pass              |                 |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | %             | 95        |       |          | 50-150            | Pass              |                 |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | %             | 79        |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | %             | 92        |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | %             | 86        |       |          | 50-150            | Pass              |                 |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | %             | 89        |       |          | 50-150            | Pass              |                 |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | %             | 92        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA's)</b>                |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | %             | 84        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorononanesulfonic acid (PFNS)                          | %             | 76        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | %             | 101       |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | %             | 87        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | %             | 90        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | %             | 96        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | %             | 92        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | %             | 70        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>         |               |           |       |          |                   |                   |                 |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | %             | 98        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | %             | 108       |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | %             | 89        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | %             | 86        |       |          | 50-150            | Pass              |                 |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |                   | Acceptance Limits | Pass Limits     | Qualifying Code |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanoic acid (PFBA)                                | M23-Ma0050978 | NCP       | %     | 92       |                   | 50-150            | Pass            |                 |
| Perfluoropentanoic acid (PFPeA)                              | M23-Ma0050213 | NCP       | %     | 93       |                   | 50-150            | Pass            |                 |
| Perfluorohexanoic acid (PFHxA)                               | M23-Ma0050213 | NCP       | %     | 79       |                   | 50-150            | Pass            |                 |
| Perfluoroheptanoic acid (PFHpA)                              | M23-Ma0049639 | NCP       | %     | 92       |                   | 50-150            | Pass            |                 |
| Perfluorooctanoic acid (PFOA)                                | M23-Ma0050213 | NCP       | %     | 99       |                   | 50-150            | Pass            |                 |
| Perfluorononanoic acid (PFNA)                                | M23-Ma0049639 | NCP       | %     | 93       |                   | 50-150            | Pass            |                 |
| Perfluorodecanoic acid (PFDA)                                | M23-Ma0049639 | NCP       | %     | 96       |                   | 50-150            | Pass            |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Ma0049639 | NCP       | %     | 98       |                   | 50-150            | Pass            |                 |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Ma0049639 | NCP       | %     | 94       |                   | 50-150            | Pass            |                 |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Ma0049639 | NCP       | %     | 116      |                   | 50-150            | Pass            |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Ma0049639 | NCP       | %     | 95       |                   | 50-150            | Pass            |                 |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Ma0049639 | NCP       | %     | 94       |                   | 50-150            | Pass            |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Ma0049639 | NCP       | %     | 106      |                   | 50-150            | Pass            |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Ma0049639 | NCP       | %     | 93       |                   | 50-150            | Pass            |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Ma0049639 | NCP       | %     | 92       |                   | 50-150            | Pass            |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Ma0049639 | NCP       | %     | 92       |                   | 50-150            | Pass            |                 |

| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
|--|---------------|-----------|-------|----------|----------|-----|-------------------|-------------|-----------------|
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)  | M23-Ma0049639 | NCP       | %     | 94       |          |     | 50-150            | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | M23-Ma0049639 | NCP       | %     | 110      |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                |               |           |       | Result 1 |          |     |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                        | M23-Ma0052249 | NCP       | %     | 68       |          |     | 50-150            | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                        | M23-Ma0049639 | NCP       | %     | 77       |          |     | 50-150            | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                      | M23-Ma0050213 | NCP       | %     | 88       |          |     | 50-150            | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                      | M23-Ma0050213 | NCP       | %     | 59       |          |     | 50-150            | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                       | M23-Ma0050213 | NCP       | %     | 103      |          |     | 50-150            | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                      | M23-Ma0050213 | NCP       | %     | 124      |          |     | 50-150            | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                        | M23-Ma0050213 | NCP       | %     | 108      |          |     | 50-150            | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                        | M23-Ma0049639 | NCP       | %     | 66       |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>         |               |           |       | Result 1 |          |     |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)        | M23-Ma0049639 | NCP       | %     | 89       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)         | M23-Ma0050978 | NCP       | %     | 87       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)        | M23-Ma0050978 | NCP       | %     | 90       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)     | M23-Ma0049639 | NCP       | %     | 90       |          |     | 50-150            | Pass        |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCA)</b>              |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                              | M23-Ma0047072 | CP        | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                            | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                             | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                            | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                              | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorononanoic acid (PFNA)                              | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                              | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                          | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                          | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                        | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotetradecanoic acid (PFTEDA)                       | M23-Ma0047072 | CP        | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |

| <b>Duplicate</b>   |               |    |      |          |          |     |     |      |
|--|---------------|----|------|----------|----------|-----|-----|------|
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |    |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Ma0047072 | CP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Ma0047072 | CP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Ma0047072 | CP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Ma0047072 | CP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Ma0047072 | CP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Ma0047072 | CP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Ma0047072 | CP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| <b>Duplicate</b>   |               |    |      |          |          |     |     |      |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                  |               |    |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorobutanesulfonic acid (PFBS)                          | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorononanesulfonic acid (PFNS)                          | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluoropropanesulfonic acid (PFPrS)                        | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluoropentanesulfonic acid (PFPeS)                        | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorohexanesulfonic acid (PFHxS)                         | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluoroheptanesulfonic acid (PFHpS)                        | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorooctanesulfonic acid (PFOS)                          | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorodecanesulfonic acid (PFDS)                          | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| <b>Duplicate</b>   |               |    |      |          |          |     |     |      |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |               |    |      | Result 1 | Result 2 | RPD |     |      |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | M23-Ma0047072 | CP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | M23-Ma0047072 | CP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |

**Comments**
**Sample Integrity**

|   |     |
|---|-----|
| Custody Seals Intact (if used)  | N/A |
| Attempt to Chill was evident  | Yes |
| Sample correctly preserved  | Yes |
| Appropriate sample containers have been used                            | Yes |
| Sample containers for volatile analysis received with minimal headspace | Yes |
| Samples received within HoldingTime                                     | Yes |
| Some samples have been subcontracted                                    | No  |

**Qualifier Codes/Comments**

| Code | Description  |
|------|--|
| N09  | Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.   |
| N11  | Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds. |
| N15  | Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).                             |

**Authorised by:**

 Analytical Services Manager  
 Senior Analyst-PFAS


**General Manager**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.



Melbourne

Geelong

Sydney

Canberra

Brisbane

Newcastle

Perth

Auckland

Christchurch

Company Name: Stantec Australia Pty Ltd (VIC)
Address: [Redacted]

Order No.:
Report #: 973583
Phone:
Fax:

Received: Mar 20, 2023 2:55 PM
Due: Mar 27, 2023
Priority: 5 Day
Contact Name: [Redacted]

Project Name: 0927 (Laverton)
Project ID: DEF19008

Eurofins Analytical Services Manager : [Redacted]

Table with columns: No, Sample ID, Sample Date, Sampling Time, Matrix, LAB ID. Includes rows for Melbourne Laboratory, External Laboratory, and Test Counts. A vertical label 'Per- and Polyfluoroalkyl Substances (PFASs)' is on the right side of the table.



Chain of Custody

PLEASE FORWARD TO EUROFINS

| PM Name: [Redacted]<br>Phone: [Redacted] Mobile: [Redacted]<br>Address: [Redacted]<br>PM Email: [Redacted]           |               |                  |            |      | Sample Matrix |      | Sample preservation |                    | Analysis                |  |  |  |      |
|--|---------------|------------------|------------|------|---------------|------|---------------------|--------------------|-------------------------|--|--|--|------|
| Project Number: DEF19008 Site: 0927 (Laverton)<br>Laboratory: Eurofins Recipient: [Redacted] Contact no.: [Redacted] |               |                  |            |      | Water         | Soil | Ice                 | PFAS (28 analytes) | #975318<br><br>24/03/23 |  |  |  | Hold |
| Sample ID  | Laboratory ID | Container        | Sampling   |      |               |      |                     |                    |                         |  |  |  |      |
|  |               |                  | Date       | Time |               |      |                     |                    |                         |  |  |  |      |
| 0927_QC204_230320  | 1             | 2 x PFAS bottles | 20/03/2023 | -    |               |      |                     |                    |                         |  |  |  |      |
| 0927_QC205_230321  | 2             | 2 x PFAS bottles | 21/03/2023 | -    |               |      |                     |                    |                         |  |  |  |      |
| 0927_QC206_230321  | 3             | 2 x PFAS bottles | 21/03/2023 | -    |               |      |                     |                    |                         |  |  |  |      |
| 0927_QC504_230322  | 4             | 2 x PFAS bottles | 22/03/2023 | -    |               |      |                     |                    |                         |  |  |  |      |

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Sampler: I attest that the proper field sampling procedures were used during the collection of these samples. Sampler name: (print and signature) [Redacted] Date: 23/03/2023

|   |            |      |  |      |      |
|---|------------|------|--|------|------|
| Relinquished by (Sampler): (print and signature) [Redacted] | 23/03/2023 | Time | Received by (Courier/Lab): (print and signature) | Date | Time |
| Relinquished by: (print and signature)                      | Date       | Time | Received by: (print and signature)               | Date | Time |
| Relinquished by: (print and signature)                      | Date       | Time | Received by: (print and signature)               | Date | Time |

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (5 days)

Please circle

Received by: [Redacted] - ALS  
 DATE: 24/03/23  
 TIME: 9:00 AM  
 COURIER: YES  
 TEMPERATURE 4.3  
 ATTEMPT TO CHILL:  YES  NO  
 23/03/23 - 15:20

## Sample Receipt Advice

**Company name:** Stantec Australia Pty Ltd (VIC)  
**Contact name:** [REDACTED]  
**Project name:** 0927 LAVERTON  
**Project ID:** DEF19008  
**Turnaround time:** 5 Day  
**Date/Time received:** Mar 24, 2023 9:00 AM  
**Eurofins reference:** 975318

## Sample Information

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

## Notes

## Contact

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

[REDACTED]

Results will be delivered electronically via email to [REDACTED]

*Note: A copy of these results will also be delivered to the general Stantec Australia Pty Ltd (VIC) email address.*

Stantec Australia Pty Ltd



NATA Accredited  
Accreditation Number 1261  
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing  
NATA is a signatory to the ILAC Mutual Recognition  
Arrangement for the mutual recognition of the  
equivalence of testing, medical testing, calibration,  
inspection, proficiency testing scheme providers and  
reference materials producers reports and certificates.

Attention:

Report **975318-W**  
Project name **0927 LAVERTON**  
Project ID **DEF19008**  
Received Date **Mar 24, 2023**

| Client Sample ID  |      |      | 0927_QC204_2<br>30320 | 0927_QC205_2<br>30321 | 0927_QC206_2<br>30321 | 0927_QC504_2<br>30322 |
|---|------|------|-----------------------|-----------------------|-----------------------|-----------------------|
| Sample Matrix   |      |      | Water                 | Water                 | Water                 | Water                 |
| Eurofins Sample No.   |      |      | M23-<br>Ma0060189     | M23-<br>Ma0060190     | M23-<br>Ma0060191     | M23-<br>Ma0060192     |
| Date Sampled  |      |      | Mar 20, 2023          | Mar 21, 2023          | Mar 21, 2023          | Mar 22, 2023          |
| Test/Reference  | LOR  | Unit |                       |                       |                       |                       |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>                              |      |      |                       |                       |                       |                       |
| Perfluorobutanoic acid (PFBA) <sup>N11</sup>                                | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| Perfluoropentanoic acid (PFPeA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01                | 0.03                  | 0.03                  | < 0.01                |
| Perfluorohexanoic acid (PFHxA) <sup>N11</sup>                               | 0.01 | ug/L | < 0.01                | 0.06                  | 0.03                  | < 0.01                |
| Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01                | <sup>NO9</sup> 0.01   | < 0.01                | < 0.01                |
| Perfluorooctanoic acid (PFOA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                | <sup>NO9</sup> 0.02   | <sup>NO9</sup> 0.02   | < 0.01                |
| Perfluorononanoic acid (PFNA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluorodecanoic acid (PFDA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluorotridecanoic acid (PFTTrDA) <sup>N15</sup>                          | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluorotetradecanoic acid (PFTTeDA) <sup>N11</sup>                        | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 13C4-PFBA (surr.)   | 1    | %    | 64                    | 70                    | 59                    | 88                    |
| 13C5-PFPeA (surr.)  | 1    | %    | 93                    | 70                    | 74                    | 99                    |
| 13C5-PFHxA (surr.)  | 1    | %    | 84                    | 68                    | 71                    | 95                    |
| 13C4-PFHpA (surr.)  | 1    | %    | 85                    | 71                    | 75                    | 99                    |
| 13C8-PFOA (surr.)   | 1    | %    | 91                    | 68                    | 73                    | 96                    |
| 13C5-PFNA (surr.)   | 1    | %    | 87                    | 68                    | 72                    | 98                    |
| 13C6-PFDA (surr.)   | 1    | %    | 104                   | 81                    | 83                    | 128                   |
| 13C2-PFUnDA (surr.)   | 1    | %    | 56                    | 51                    | 53                    | 64                    |
| 13C2-PFDoDA (surr.)   | 1    | %    | 44                    | 51                    | 52                    | 82                    |
| 13C2-PFTTeDA (surr.)  | 1    | %    | 61                    | 53                    | 55                    | 51                    |
| <b>Perfluoroalkyl sulfonamido substances</b>                                |      |      |                       |                       |                       |                       |
| Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>                           | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>            | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>             | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) <sup>N11</sup> | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) <sup>N11</sup>  | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>    | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>   | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| 13C8-FOSA (surr.)   | 1    | %    | 90                    | 81                    | 83                    | 84                    |
| D3-N-MeFOSA (surr.)   | 1    | %    | 54                    | 63                    | 73                    | 59                    |

| Client Sample ID  |      |      | 0927_QC204_2<br>30320 | 0927_QC205_2<br>30321 | 0927_QC206_2<br>30321 | 0927_QC504_2<br>30322 |
|---|------|------|-----------------------|-----------------------|-----------------------|-----------------------|
| Sample Matrix   |      |      | Water                 | Water                 | Water                 | Water                 |
| Eurofins Sample No.   |      |      | M23-<br>Ma0060189     | M23-<br>Ma0060190     | M23-<br>Ma0060191     | M23-<br>Ma0060192     |
| Date Sampled  |      |      | Mar 20, 2023          | Mar 21, 2023          | Mar 21, 2023          | Mar 22, 2023          |
| Test/Reference  | LOR  | Unit |                       |                       |                       |                       |
| <b>Perfluoroalkyl sulfonamido substances</b>                          |      |      |                       |                       |                       |                       |
| D5-N-EtFOSA (surr.)   | 1    | %    | 50                    | 59                    | 68                    | 63                    |
| D7-N-MeFOSE (surr.)   | 1    | %    | 59                    | 50                    | 52                    | 76                    |
| D9-N-EtFOSE (surr.)   | 1    | %    | 61                    | 50                    | 52                    | 74                    |
| D5-N-EtFOSAA (surr.)  | 1    | %    | 51                    | 56                    | 57                    | 88                    |
| D3-N-MeFOSAA (surr.)  | 1    | %    | 53                    | 59                    | 59                    | 80                    |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                          |      |      |                       |                       |                       |                       |
| Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>                    | 0.01 | ug/L | < 0.01                | <sup>NO9</sup> 0.03   | <sup>NO9</sup> 0.01   | < 0.01                |
| Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01                | 0.01                  | < 0.01                | < 0.01                |
| Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01                | <sup>NO9</sup> 0.04   | <sup>NO9</sup> 0.01   | < 0.01                |
| Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>                   | 0.01 | ug/L | < 0.01                | <sup>NO9</sup> 0.26   | <sup>NO9</sup> 0.08   | <sup>NO9</sup> < 0.01 |
| Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01                | <sup>NO9</sup> 0.02   | < 0.01                | < 0.01                |
| Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>                    | 0.01 | ug/L | <sup>NO9</sup> 0.01   | <sup>NO9</sup> 0.21   | <sup>NO9</sup> 0.08   | <sup>NO9</sup> < 0.01 |
| Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 13C3-PFBS (surr.)   | 1    | %    | 93                    | 68                    | 74                    | 90                    |
| 18O2-PFHxS (surr.)  | 1    | %    | 100                   | 71                    | 74                    | 96                    |
| 13C8-PFOS (surr.)   | 1    | %    | 78                    | 68                    | 74                    | 100                   |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>                    |      |      |                       |                       |                       |                       |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) <sup>N11</sup>     | 0.05 | ug/L | < 0.05                | < 0.05                | < 0.05                | < 0.05                |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup> | 0.01 | ug/L | < 0.01                | < 0.01                | < 0.01                | < 0.01                |
| 13C2-4:2 FTSA (surr.)   | 1    | %    | 114                   | 87                    | 97                    | 95                    |
| 13C2-6:2 FTSA (surr.)   | 1    | %    | 88                    | 83                    | 91                    | 113                   |
| 13C2-8:2 FTSA (surr.)   | 1    | %    | 53                    | 63                    | 64                    | 90                    |
| 13C2-10:2 FTSA (surr.)  | 1    | %    | 52                    | 58                    | 56                    | 87                    |
| <b>PFASs Summations</b>   |      |      |                       |                       |                       |                       |
| Sum (PFHxS + PFOS)*   | 0.01 | ug/L | 0.01                  | 0.47                  | 0.16                  | < 0.01                |
| Sum of US EPA PFAS (PFOS + PFOA)*                                     | 0.01 | ug/L | 0.01                  | 0.23                  | 0.1                   | < 0.01                |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                           | 0.01 | ug/L | 0.01                  | 0.49                  | 0.18                  | < 0.01                |
| Sum of WA DWER PFAS (n=10)*   | 0.05 | ug/L | < 0.05                | 0.62                  | 0.25                  | < 0.05                |
| Sum of PFASs (n=30)*  | 0.1  | ug/L | < 0.1                 | 0.69                  | 0.26                  | < 0.1                 |

**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

| Description   | Testing Site | Extracted    | Holding Time |
|---|--------------|--------------|--------------|
| Per- and Polyfluoroalkyl Substances (PFASs)   |              |              |              |
| Perfluoroalkyl carboxylic acids (PFCAs)<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)      | Melbourne    | Mar 31, 2023 | 28 Days      |
| Perfluoroalkyl sulfonamido substances<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)        | Melbourne    | Mar 31, 2023 | 28 Days      |
| Perfluoroalkyl sulfonic acids (PFSA)<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)         | Melbourne    | Mar 31, 2023 | 28 Days      |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) | Melbourne    | Mar 31, 2023 | 28 Days      |
| PFASs Summations<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)                             | Melbourne    | Mar 24, 2023 |              |

**Repeat Samples**

| Description   | Testing Site | Extracted    | Holding Time |
|---|--------------|--------------|--------------|
| Per- and Polyfluoroalkyl Substances (PFASs)   |              |              |              |
| Perfluoroalkyl carboxylic acids (PFCAs)<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)      | Melbourne    | Mar 31, 2023 | 28 Days      |
| Perfluoroalkyl sulfonamido substances<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)        | Melbourne    | Mar 31, 2023 | 28 Days      |
| Perfluoroalkyl sulfonic acids (PFSA)<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)         | Melbourne    | Mar 31, 2023 | 28 Days      |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) | Melbourne    | Mar 31, 2023 | 28 Days      |
| PFASs Summations<br>- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)                             | Melbourne    | Mar 24, 2023 |              |

Melbourne

Sydney

Newcastle

Perth

Auckland

Christchurch

**Company Name:** Stantec Australia Pty Ltd (VIC)  
**Address:** [Redacted]  
 [Redacted]  
 [Redacted]

**Order No.:**  
**Report #:** 975318  
**Phone:**  
**Fax:**

**Received:** Mar 24, 2023 9:00 AM  
**Due:** Mar 31, 2023  
**Priority:** 5 Day  
**Contact Name:** [Redacted]

**Project Name:** 0927 LAVERTON  
**Project ID:** DEF19008

**Eurofins Analytical Services Manager** [Redacted]

| Sample Detail                                  |                   |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |   |
|--|-------------------|--------------|---------------|--------|---------------|---|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                   |              |               |        |               |   | X |
| External Laboratory                            |                   |              |               |        |               |   |   |
| No   | Sample ID         | Sample Date  | Sampling Time | Matrix | LAB ID        |   |   |
| 1  | 0927_QC204_230320 | Mar 20, 2023 |               | Water  | M23-Ma0060189 |   | X |
| 2  | 0927_QC205_230321 | Mar 21, 2023 |               | Water  | M23-Ma0060190 | X   |   |
| 3  | 0927_QC206_230321 | Mar 21, 2023 |               | Water  | M23-Ma0060191 | X   |   |
| 4  | 0927_QC504_230322 | Mar 22, 2023 |               | Water  | M23-Ma0060192 | X   |   |
| <b>Test Counts</b>                             |                   |              |               |        |               | 4   |   |

**Internal Quality Control Review and Glossary**
**General**

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

**Holding Times**

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**Units**

|  |   |  |
|--|---|--|
| <b>mg/kg:</b> milligrams per kilogram            | <b>mg/L:</b> milligrams per litre         | <b>µg/L:</b> micrograms per litre  |
| <b>ppm:</b> parts per million                    | <b>ppb:</b> parts per billion             | <b>%:</b> Percentage   |
| <b>org/100 mL:</b> Organisms per 100 millilitres | <b>NTU:</b> Nephelometric Turbidity Units | <b>MPN/100 mL:</b> Most Probable Number of organisms per 100 millilitres |
| <b>CFU:</b> Colony forming unit                  |   |  |

**Terms**

|                         |   |
|-------------------------|---|
| <b>APHA</b>             | American Public Health Association  |
| <b>COC</b>              | Chain of Custody  |
| <b>CP</b>               | Client Parent - QC was performed on samples pertaining to this report   |
| <b>CRM</b>              | Certified Reference Material (ISO17034) - reported as percent recovery.   |
| <b>Dry</b>              | Where a moisture has been determined on a solid sample the result is expressed on a dry basis.  |
| <b>Duplicate</b>        | A second piece of analysis from the same sample and reported in the same units as the result to show comparison.  |
| <b>LOR</b>              | Limit of Reporting.   |
| <b>LCS</b>              | Laboratory Control Sample - reported as percent recovery.   |
| <b>Method Blank</b>     | In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.  |
| <b>NCP</b>              | Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.  |
| <b>RPD</b>              | Relative Percent Difference between two Duplicate pieces of analysis.   |
| <b>SPIKE</b>            | Addition of the analyte to the sample and reported as percentage recovery.  |
| <b>SRA</b>              | Sample Receipt Advice   |
| <b>Surr - Surrogate</b> | The addition of a like compound to the analyte target and reported as percentage recovery.  |
| <b>TBTO</b>             | Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| <b>TCLP</b>             | Toxicity Characteristic Leaching Procedure  |
| <b>TEQ</b>              | Toxic Equivalency Quotient or Total Equivalence   |
| <b>QSM</b>              | US Department of Defense Quality Systems Manual Version 5.4   |
| <b>US EPA</b>           | United States Environmental Protection Agency   |
| <b>WA DWER</b>          | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA   |

**QC - Acceptance Criteria**

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

**QC Data General Comments**

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

**Quality Control Results**

| Test   | Units | Result 1 |  | Acceptance Limits | Pass Limits | Qualifying Code |
|--|-------|----------|--|-------------------|-------------|-----------------|
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |       |          |  |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                 |       |          |  |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |       |          |  |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>LCS - % Recovery</b>                                      |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | %     | 127      |  | 50-150            | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | %     | 119      |  | 50-150            | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | %     | 103      |  | 50-150            | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | %     | 98       |  | 50-150            | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | %     | 101      |  | 50-150            | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | %     | 94       |  | 50-150            | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | %     | 99       |  | 50-150            | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | %     | 104      |  | 50-150            | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | %     | 103      |  | 50-150            | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | %     | 115      |  | 50-150            | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | %     | 104      |  | 50-150            | Pass        |                 |



| Test   | Units         | Result 1  |       |          | Acceptance Limits | Pass Limits       | Qualifying Code |                 |
|--|---------------|-----------|-------|----------|-------------------|-------------------|-----------------|-----------------|
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | %             | 99        |       |          | 50-150            | Pass              |                 |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | %             | 83        |       |          | 50-150            | Pass              |                 |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | %             | 76        |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | %             | 96        |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | %             | 100       |       |          | 50-150            | Pass              |                 |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | %             | 99        |       |          | 50-150            | Pass              |                 |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | %             | 85        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA's)</b>                |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | %             | 93        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorononanesulfonic acid (PFNS)                          | %             | 121       |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | %             | 100       |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | %             | 98        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | %             | 97        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | %             | 109       |       |          | 50-150            | Pass              |                 |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | %             | 105       |       |          | 50-150            | Pass              |                 |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | %             | 111       |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>         |               |           |       |          |                   |                   |                 |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | %             | 97        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | %             | 113       |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | %             | 93        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | %             | 93        |       |          | 50-150            | Pass              |                 |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |                   | Acceptance Limits | Pass Limits     | Qualifying Code |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanoic acid (PFBA)                                | M23-Ma0060508 | NCP       | %     | 113      |                   | 50-150            | Pass            |                 |
| Perfluoropentanoic acid (PFPeA)                              | M23-Ma0060508 | NCP       | %     | 109      |                   | 50-150            | Pass            |                 |
| Perfluorohexanoic acid (PFHxA)                               | M23-Ma0060508 | NCP       | %     | 106      |                   | 50-150            | Pass            |                 |
| Perfluoroheptanoic acid (PFHpA)                              | M23-Ma0060508 | NCP       | %     | 98       |                   | 50-150            | Pass            |                 |
| Perfluorooctanoic acid (PFOA)                                | M23-Ma0060508 | NCP       | %     | 108      |                   | 50-150            | Pass            |                 |
| Perfluorononanoic acid (PFNA)                                | M23-Ma0060508 | NCP       | %     | 103      |                   | 50-150            | Pass            |                 |
| Perfluorodecanoic acid (PFDA)                                | M23-Ma0060508 | NCP       | %     | 107      |                   | 50-150            | Pass            |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Ma0060508 | NCP       | %     | 112      |                   | 50-150            | Pass            |                 |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Ma0060508 | NCP       | %     | 109      |                   | 50-150            | Pass            |                 |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Ma0060508 | NCP       | %     | 140      |                   | 50-150            | Pass            |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Ma0060508 | NCP       | %     | 103      |                   | 50-150            | Pass            |                 |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Ma0060508 | NCP       | %     | 114      |                   | 50-150            | Pass            |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Ma0060508 | NCP       | %     | 108      |                   | 50-150            | Pass            |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Ma0060508 | NCP       | %     | 100      |                   | 50-150            | Pass            |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Ma0060508 | NCP       | %     | 109      |                   | 50-150            | Pass            |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Ma0060508 | NCP       | %     | 108      |                   | 50-150            | Pass            |                 |

| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
|--|---------------|-----------|-------|----------|----------|-----|-------------------|-------------|-----------------|
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)  | M23-Ma0060508 | NCP       | %     | 111      |          |     | 50-150            | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | M23-Ma0060508 | NCP       | %     | 96       |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                |               |           |       | Result 1 |          |     |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                        | M23-Ma0060508 | NCP       | %     | 102      |          |     | 50-150            | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                        | M23-Ma0060508 | NCP       | %     | 110      |          |     | 50-150            | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                      | M23-Ma0060508 | NCP       | %     | 108      |          |     | 50-150            | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                      | M23-Ma0060508 | NCP       | %     | 111      |          |     | 50-150            | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                       | M23-Ma0060508 | NCP       | %     | 109      |          |     | 50-150            | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                      | M23-Ma0060508 | NCP       | %     | 123      |          |     | 50-150            | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                        | M23-Ma0060508 | NCP       | %     | 101      |          |     | 50-150            | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                        | M23-Ma0060508 | NCP       | %     | 87       |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>         |               |           |       | Result 1 |          |     |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)        | M23-Ma0060508 | NCP       | %     | 101      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)         | M23-Ma0060508 | NCP       | %     | 120      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)        | M23-Ma0060508 | NCP       | %     | 104      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)     | M23-Ma0060508 | NCP       | %     | 122      |          |     | 50-150            | Pass        |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>             |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                              | M23-Ma0060507 | NCP       | ug/L  | 0.45     | 0.44     | <1  | 30%               | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                            | M23-Ma0060507 | NCP       | ug/L  | 1.0      | 1.0      | <1  | 30%               | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                             | L23-Ma0056770 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                            | M23-Ma0060507 | NCP       | ug/L  | 0.37     | 0.37     | <1  | 30%               | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                              | M23-Ma0060507 | NCP       | ug/L  | 0.90     | 0.89     | <1  | 30%               | Pass        |                 |
| Perfluorononanoic acid (PFNA)                              | M23-Ma0060507 | NCP       | ug/L  | 0.05     | 0.05     | 2.0 | 30%               | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                              | M23-Ma0060507 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                          | M23-Ma0060507 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                          | M23-Ma0060507 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                        | M23-Ma0060507 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotetradecanoic acid (PFTTeDA)                      | M23-Ma0060507 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |

| Duplicate  |               |     |      |          |          |     |     |      |
|--|---------------|-----|------|----------|----------|-----|-----|------|
| Perfluoroalkyl sulfonamido substances                        |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Ma0060507 | NCP | ug/L | 0.09     | 0.09     | 1.8 | 30% | Pass |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Ma0060507 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Ma0060507 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Ma0060507 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Ma0060507 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Ma0060507 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Ma0060507 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| Perfluoroalkyl sulfonic acids (PFSA)                         |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorobutanesulfonic acid (PFBS)                          | M23-Ma0060507 | NCP | ug/L | 0.75     | 0.76     | <1  | 30% | Pass |
| Perfluorononanesulfonic acid (PFNS)                          | L23-Ma0056770 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluoropropanesulfonic acid (PFPrS)                        | M23-Ma0060507 | NCP | ug/L | 0.40     | 0.40     | <1  | 30% | Pass |
| Perfluoropentanesulfonic acid (PFPeS)                        | M23-Ma0060507 | NCP | ug/L | 1.1      | 1.1      | <1  | 30% | Pass |
| Perfluorohexanesulfonic acid (PFHxS)                         | L23-Ma0056770 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluoroheptanesulfonic acid (PFHpS)                        | L23-Ma0056770 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorooctanesulfonic acid (PFOS)                          | L23-Ma0056770 | NCP | ug/L | 0.03     | 0.02     | 8.3 | 30% | Pass |
| Perfluorodecanesulfonic acid (PFDS)                          | L23-Ma0056770 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSA)                  |               |     |      | Result 1 | Result 2 | RPD |     |      |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | M23-Ma0060507 | NCP | ug/L | 0.01     | 0.01     | 6.0 | 30% | Pass |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | L23-Ma0056770 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | M23-Ma0060507 | NCP | ug/L | 0.45     | 0.37     | 20  | 30% | Pass |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | M23-Ma0060507 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |

**Comments**
**Sample Integrity**

|   |     |
|---|-----|
| Custody Seals Intact (if used)  | N/A |
| Attempt to Chill was evident  | Yes |
| Sample correctly preserved  | Yes |
| Appropriate sample containers have been used                            | Yes |
| Sample containers for volatile analysis received with minimal headspace | Yes |
| Samples received within HoldingTime                                     | Yes |
| Some samples have been subcontracted                                    | No  |

**Qualifier Codes/Comments**

| Code | Description  |
|------|--|
| N09  | Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.   |
| N11  | Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds. |
| N15  | Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).                             |

**Authorised by:**

 Analytical Services Manager  
 Senior Analyst-PFAS



**General Manager**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Melbourne

Geelong

Sydney

Canberra

Brisbane

Newcastle

Perth

Auckland

Christchurch

Company Name: Stantec Australia Pty Ltd (VIC)
Address: [Redacted]
[Redacted]e
[Redacted]

Order No.:
Report #: 975318
Phone:
Fax:

Received: Mar 24, 2023 9:00 AM
Due: Mar 31, 2023
Priority: 5 Day
Contact Name: [Redacted]

Project Name: 0927 LAVERTON
Project ID: DEF19008

Eurofins Analytical Services Manager : [Redacted]

Table with columns: No, Sample ID, Sample Date, Sampling Time, Matrix, LAB ID. Includes a large 'Sample Detail' section and a 'Test Counts' row showing 4 counts.

Table with 1 column: Per- and Polyfluoroalkyl Substances (PFASs). Contains a large empty area for results.

**Chain of Custody**

**PLEASE FORWARD TO EUROFINS**

**Sheet 1 of 1**

| PM Name: [REDACTED]                            |               |                  |            | Sample Matrix |   | Sample preservation |  | Analysis |   |                    |  |      |  |
|--|---------------|------------------|------------|---------------|---|---------------------|--|----------|---|--------------------|--|------|--|
| Phone: [REDACTED]                              |               |                  |            |               |   |                     |  |          |   |                    |  |      |  |
| Address: [REDACTED]                            |               |                  |            | Water         |   | Soil                |  | Ice      |   | PFAS (28 analytes) |  | Hold |  |
| PM Email: [REDACTED]                           |               |                  |            |               |   |                     |  |          |   |                    |  |      |  |
| Project Number: DEF19008 Site: 0927 (Laverton) |               |                  |            | Date          |   | Time                |  |          |   |                    |  |      |  |
| Laboratory: Eurofins Recipient: [REDACTED]     |               |                  |            |               |   |                     |  |          |   |                    |  |      |  |
| Sample ID                                      | Laboratory ID | Container        | Sampling   |               |   |                     |  |          |   |                    |  |      |  |
|  |               |                  | Date       | Time          |   |                     |  |          |   |                    |  |      |  |
| 0927_QC204_230320                              | 1             | 2 x PFAS bottles | 20/03/2023 | -             | X |                     |  |          | X |                    |  |      |  |
| 0927_QC205_230321                              | 2             | 2 x PFAS bottles | 21/03/2023 | -             | X |                     |  |          | X |                    |  |      |  |
| 0927_QC206_230321                              | 3             | 2 x PFAS bottles | 21/03/2023 | -             | X |                     |  |          | X |                    |  |      |  |
| 0927_QC504_230322                              | 4             | 2 x PFAS bottles | 22/03/2023 | -             | X |                     |  |          | X |                    |  |      |  |

#975318  
24/03/23

73

**Sampler:** I attest that the proper field sampling procedures were used during the collection of these samples. **Sampler name:** (print and signature) [REDACTED] **Date:** 23/03/2023

|   |            |      |  |      |      |
|---|------------|------|--|------|------|
| Relinquished by (Sampler): (print and signature) [REDACTED] | 23/03/2023 | Time | Received by (Courier/Lab): (print and signature) | Date | Time |
| Relinquished by: (print and signature)                      | Date       | Time | Received by: (print and signature)               | Date | Time |
| Relinquished by: (print and signature)                      | Date       | Time | Received by: (print and signature)               | Date | Time |

Please supply results electronically in spreadsheet and ESDAT files.

**Turn around time: (5 days)**

Please circle

DATE: 23/03/23

TIME: 9:00 AM

COURIER: YES

TEMPERATURE 4.3

ATTEMP TO CHILL:  YES

23/03/23 - 15:20

014 

NO

## Tyrone Gowans

---

**From:**  
**Sent:**  
**To:**  
**Subject:**



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[Redacted]

Can we please request to have the results for following samples as two separate lab reports?

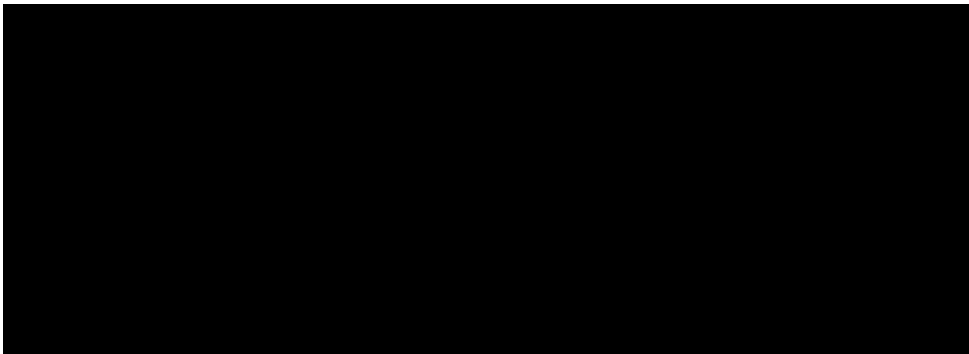
975318-W  
Project name 0927 LAVERTON

QC205 and QC206.

If possible, can you pls reissue by COB today?

Thanks

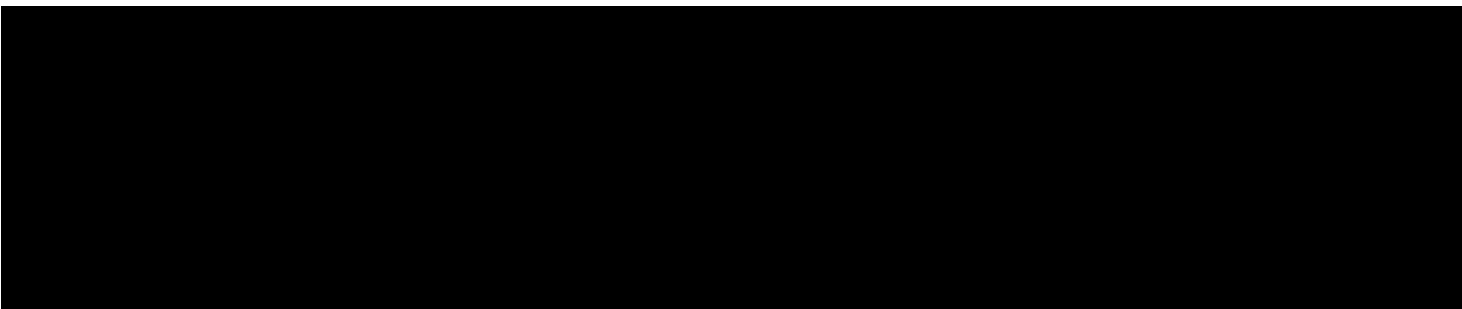
[Redacted]



Stantec acknowledges the Traditional Owners of Country throughout Australia and recognises their continuing connection to lands, waters and communities. We pay our respect to Aboriginal and Torres Strait Islander cultures and to Elders past and present.

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## Sample Receipt Advice

**Company name:** Stantec Australia Pty Ltd (VIC)  
**Contact name:** [REDACTED]  
**Project name:** 0927 LAVERTON  
**Project ID:** DEF19008  
**Turnaround time:** 5 Day  
**Date/Time received:** Mar 24, 2023 9:00 AM  
**Eurofins reference:** 985120

## Sample Information

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

## Notes

## Contact

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

[REDACTED]

Results will be delivered electronically via email to [REDACTED]

*Note: A copy of these results will also be delivered to the general Stantec Australia Pty Ltd (VIC) email address.*



**Stantec Australia Pty Ltd**  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]

**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 1254**

 Accredited for compliance with ISO/IEC 17025 – Testing  
 NATA is a signatory to the ILAC Mutual Recognition  
 Arrangement for the mutual recognition of the  
 equivalence of testing, medical testing, calibration,  
 inspection, proficiency testing scheme providers and  
 reference materials producers reports and certificates.

**Attention:** [REDACTED]

**Report** **985120-W**  
 Project name **0927 LAVERTON**  
 Project ID **DEF19008**  
 Received Date **Mar 24, 2023**

| Client Sample ID  | LOR  | Unit | 0927_QC205_2<br>30321     |
|---|------|------|---------------------------|
| <b>Sample Matrix</b>  |      |      | <b>Water</b>              |
| <b>Eurofins Sample No.</b>  |      |      | <b>M23-<br/>Ma0060190</b> |
| <b>Date Sampled</b>   |      |      | <b>Mar 21, 2023</b>       |
| Test/Reference  | LOR  | Unit |                           |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>                              |      |      |                           |
| Perfluorobutanoic acid (PFBA) <sup>N11</sup>                                | 0.05 | ug/L | < 0.05                    |
| Perfluoropentanoic acid (PFPeA) <sup>N11</sup>                              | 0.01 | ug/L | 0.03                      |
| Perfluorohexanoic acid (PFHxA) <sup>N11</sup>                               | 0.01 | ug/L | 0.06                      |
| Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>                              | 0.01 | ug/L | 0.01                      |
| Perfluorooctanoic acid (PFOA) <sup>N11</sup>                                | 0.01 | ug/L | 0.02                      |
| Perfluorononanoic acid (PFNA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                    |
| Perfluorodecanoic acid (PFDA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                    |
| Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                    |
| Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                    |
| Perfluorotridecanoic acid (PFTeDA) <sup>N15</sup>                           | 0.01 | ug/L | < 0.01                    |
| Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>                         | 0.01 | ug/L | < 0.01                    |
| 13C4-PFBA (surr.)   | 1    | %    | 70                        |
| 13C5-PFPeA (surr.)  | 1    | %    | 70                        |
| 13C5-PFHxA (surr.)  | 1    | %    | 68                        |
| 13C4-PFHpA (surr.)  | 1    | %    | 71                        |
| 13C8-PFOA (surr.)   | 1    | %    | 68                        |
| 13C5-PFNA (surr.)   | 1    | %    | 68                        |
| 13C6-PFDA (surr.)   | 1    | %    | 81                        |
| 13C2-PFUnDA (surr.)   | 1    | %    | 51                        |
| 13C2-PFDoDA (surr.)   | 1    | %    | 51                        |
| 13C2-PFTeDA (surr.)   | 1    | %    | 53                        |
| <b>Perfluoroalkyl sulfonamido substances</b>                                |      |      |                           |
| Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>                           | 0.05 | ug/L | < 0.05                    |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>            | 0.05 | ug/L | < 0.05                    |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>             | 0.05 | ug/L | < 0.05                    |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) <sup>N11</sup> | 0.05 | ug/L | < 0.05                    |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) <sup>N11</sup>  | 0.05 | ug/L | < 0.05                    |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>    | 0.05 | ug/L | < 0.05                    |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>   | 0.05 | ug/L | < 0.05                    |
| 13C8-FOSA (surr.)   | 1    | %    | 81                        |
| D3-N-MeFOSA (surr.)   | 1    | %    | 63                        |

|   |      |      |                               |
|---|------|------|-------------------------------|
| <b>Client Sample ID</b>   |      |      | <b>0927_QC205_2<br/>30321</b> |
| <b>Sample Matrix</b>  |      |      | <b>Water</b>                  |
| <b>Eurofins Sample No.</b>  |      |      | <b>M23-<br/>Ma0060190</b>     |
| <b>Date Sampled</b>   |      |      | <b>Mar 21, 2023</b>           |
| Test/Reference  | LOR  | Unit |                               |
| <b>Perfluoroalkyl sulfonamido substances</b>                          |      |      |                               |
| D5-N-EtFOSA (surr.)   | 1    | %    | 59                            |
| D7-N-MeFOSE (surr.)   | 1    | %    | 50                            |
| D9-N-EtFOSE (surr.)   | 1    | %    | 50                            |
| D5-N-EtFOSAA (surr.)  | 1    | %    | 56                            |
| D3-N-MeFOSAA (surr.)  | 1    | %    | 59                            |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                          |      |      |                               |
| Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>                    | 0.01 | ug/L | 0.03                          |
| Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                        |
| Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>                  | 0.01 | ug/L | 0.01                          |
| Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>                  | 0.01 | ug/L | 0.04                          |
| Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>                   | 0.01 | ug/L | 0.26                          |
| Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>                  | 0.01 | ug/L | 0.02                          |
| Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>                    | 0.01 | ug/L | 0.21                          |
| Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                        |
| 13C3-PFBS (surr.)   | 1    | %    | 68                            |
| 18O2-PFHxS (surr.)  | 1    | %    | 71                            |
| 13C8-PFOS (surr.)   | 1    | %    | 68                            |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>                    |      |      |                               |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                        |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) <sup>N11</sup>     | 0.05 | ug/L | < 0.05                        |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                        |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup> | 0.01 | ug/L | < 0.01                        |
| 13C2-4:2 FTSA (surr.)   | 1    | %    | 87                            |
| 13C2-6:2 FTSA (surr.)   | 1    | %    | 83                            |
| 13C2-8:2 FTSA (surr.)   | 1    | %    | 63                            |
| 13C2-10:2 FTSA (surr.)  | 1    | %    | 58                            |
| <b>PFASs Summations</b>   |      |      |                               |
| Sum (PFHxS + PFOS)*   | 0.01 | ug/L | 0.47                          |
| Sum of US EPA PFAS (PFOS + PFOA)*                                     | 0.01 | ug/L | 0.23                          |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                           | 0.01 | ug/L | 0.49                          |
| Sum of WA DWER PFAS (n=10)*   | 0.05 | ug/L | 0.62                          |
| Sum of PFASs (n=30)*  | 0.1  | ug/L | 0.69                          |

**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

| Description   | Testing Site | Extracted    | Holding Time |
|---|--------------|--------------|--------------|
| Per- and Polyfluoroalkyl Substances (PFASs)                       |              |              |              |
| Perfluoroalkyl carboxylic acids (PFCAs)                           | Melbourne    | Mar 27, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonamido substances                             | Melbourne    | Mar 27, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonic acids (PFSAs)                             | Melbourne    | Mar 27, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)                      | Melbourne    | Mar 27, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| PFASs Summations  | Melbourne    | Mar 24, 2023 |              |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |

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email: EnviroSales@eurofins.com



|                      |                                 |                   |        |                      |  |
|----------------------|---------------------------------|-------------------|--------|----------------------|--|
| <b>Company Name:</b> | Stantec Australia Pty Ltd (VIC) | <b>Order No.:</b> |        | <b>Received:</b>     | Mar 24, 2023 9:00 AM                                     |
| <b>Address:</b>      | [Redacted]                      | <b>Report #:</b>  | 985120 | <b>Due:</b>          | May 8, 2023  |
|                      | [Redacted]                      | <b>Phone:</b>     |        | <b>Priority:</b>     | 5 Day  |
|                      | [Redacted]                      | <b>Fax:</b>       |        | <b>Contact Name:</b> | [Redacted]   |
| <b>Project Name:</b> | 0927 LAVERTON                   |                   |        |                      |  |
| <b>Project ID:</b>   | DEF19008                        |                   |        |                      |  |
|                      |                                 |                   |        |                      | <b>Eurofins Analytical Services Manager :</b> [Redacted] |

| Sample Detail                                  |                   |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|-------------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                   |              |               |        |               |   |
| External Laboratory                            |                   |              |               |        |               |   |
| No   | Sample ID         | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | 0927_QC205_230321 | Mar 21, 2023 |               | Water  | M23-Ma0060190 | X   |
| <b>Test Counts</b>                             |                   |              |               |        |               | 1   |

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

|  |   |  |
|--|---|--|
| <b>mg/kg:</b> milligrams per kilogram            | <b>mg/L:</b> milligrams per litre         | <b>µg/L:</b> micrograms per litre  |
| <b>ppm:</b> parts per million                    | <b>ppb:</b> parts per billion             | <b>%:</b> Percentage   |
| <b>org/100 mL:</b> Organisms per 100 millilitres | <b>NTU:</b> Nephelometric Turbidity Units | <b>MPN/100 mL:</b> Most Probable Number of organisms per 100 millilitres |
| <b>CFU:</b> Colony forming unit                  |   |  |

Terms

|                         |   |
|-------------------------|---|
| <b>APHA</b>             | American Public Health Association  |
| <b>COC</b>              | Chain of Custody  |
| <b>CP</b>               | Client Parent - QC was performed on samples pertaining to this report   |
| <b>CRM</b>              | Certified Reference Material (ISO17034) - reported as percent recovery.   |
| <b>Dry</b>              | Where a moisture has been determined on a solid sample the result is expressed on a dry basis.  |
| <b>Duplicate</b>        | A second piece of analysis from the same sample and reported in the same units as the result to show comparison.  |
| <b>LOR</b>              | Limit of Reporting.   |
| <b>LCS</b>              | Laboratory Control Sample - reported as percent recovery.   |
| <b>Method Blank</b>     | In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.  |
| <b>NCP</b>              | Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.  |
| <b>RPD</b>              | Relative Percent Difference between two Duplicate pieces of analysis.   |
| <b>SPIKE</b>            | Addition of the analyte to the sample and reported as percentage recovery.  |
| <b>SRA</b>              | Sample Receipt Advice   |
| <b>Surr - Surrogate</b> | The addition of a like compound to the analyte target and reported as percentage recovery.  |
| <b>TBTO</b>             | Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| <b>TCLP</b>             | Toxicity Characteristic Leaching Procedure  |
| <b>TEQ</b>              | Toxic Equivalency Quotient or Total Equivalence   |
| <b>QSM</b>              | US Department of Defense Quality Systems Manual Version 5.4   |
| <b>US EPA</b>           | United States Environmental Protection Agency   |
| <b>WA DWER</b>          | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA   |

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

**Quality Control Results**

| Test   | Units | Result 1 |  | Acceptance Limits | Pass Limits | Qualifying Code |
|--|-------|----------|--|-------------------|-------------|-----------------|
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |       |          |  |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                 |       |          |  |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |       |          |  |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>LCS - % Recovery</b>                                      |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | %     | 127      |  | 50-150            | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | %     | 104      |  | 50-150            | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | %     | 106      |  | 50-150            | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | %     | 104      |  | 50-150            | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | %     | 110      |  | 50-150            | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | %     | 114      |  | 50-150            | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | %     | 117      |  | 50-150            | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | %     | 113      |  | 50-150            | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | %     | 112      |  | 50-150            | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | %     | 108      |  | 50-150            | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | %     | 121      |  | 50-150            | Pass        |                 |

| Test   | Units         | Result 1  |       |          | Acceptance Limits | Pass Limits       | Qualifying Code |                 |
|--|---------------|-----------|-------|----------|-------------------|-------------------|-----------------|-----------------|
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | %             | 104       |       |          | 50-150            | Pass              |                 |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | %             | 102       |       |          | 50-150            | Pass              |                 |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | %             | 98        |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | %             | 102       |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | %             | 100       |       |          | 50-150            | Pass              |                 |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | %             | 106       |       |          | 50-150            | Pass              |                 |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | %             | 113       |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA's)</b>                |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | %             | 93        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorononanesulfonic acid (PFNS)                          | %             | 101       |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | %             | 89        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | %             | 88        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | %             | 101       |       |          | 50-150            | Pass              |                 |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | %             | 102       |       |          | 50-150            | Pass              |                 |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | %             | 109       |       |          | 50-150            | Pass              |                 |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | %             | 97        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>         |               |           |       |          |                   |                   |                 |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | %             | 94        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | %             | 112       |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | %             | 111       |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | %             | 109       |       |          | 50-150            | Pass              |                 |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |                   | Acceptance Limits | Pass Limits     | Qualifying Code |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanoic acid (PFBA)                                | K23-Ma0044812 | NCP       | %     | 117      |                   | 50-150            | Pass            |                 |
| Perfluoropentanoic acid (PFPeA)                              | K23-Ma0044812 | NCP       | %     | 124      |                   | 50-150            | Pass            |                 |
| Perfluorohexanoic acid (PFHxA)                               | K23-Ma0044812 | NCP       | %     | 116      |                   | 50-150            | Pass            |                 |
| Perfluoroheptanoic acid (PFHpA)                              | K23-Ma0044812 | NCP       | %     | 119      |                   | 50-150            | Pass            |                 |
| Perfluorooctanoic acid (PFOA)                                | K23-Ma0044812 | NCP       | %     | 120      |                   | 50-150            | Pass            |                 |
| Perfluorononanoic acid (PFNA)                                | M23-Ma0057761 | NCP       | %     | 107      |                   | 50-150            | Pass            |                 |
| Perfluorodecanoic acid (PFDA)                                | M23-Ma0057761 | NCP       | %     | 112      |                   | 50-150            | Pass            |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Ma0057761 | NCP       | %     | 120      |                   | 50-150            | Pass            |                 |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Ma0057761 | NCP       | %     | 122      |                   | 50-150            | Pass            |                 |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Ma0057761 | NCP       | %     | 117      |                   | 50-150            | Pass            |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Ma0057761 | NCP       | %     | 133      |                   | 50-150            | Pass            |                 |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | K23-Ma0044812 | NCP       | %     | 119      |                   | 50-150            | Pass            |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Ma0057761 | NCP       | %     | 116      |                   | 50-150            | Pass            |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Ma0057761 | NCP       | %     | 109      |                   | 50-150            | Pass            |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Ma0057761 | NCP       | %     | 112      |                   | 50-150            | Pass            |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Ma0057761 | NCP       | %     | 109      |                   | 50-150            | Pass            |                 |

| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
|--|---------------|-----------|-------|----------|----------|-----|-------------------|-------------|-----------------|
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)  | M23-Ma0057761 | NCP       | %     | 108      |          |     | 50-150            | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | M23-Ma0057761 | NCP       | %     | 111      |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                |               |           |       | Result 1 |          |     |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                        | K23-Ma0044812 | NCP       | %     | 94       |          |     | 50-150            | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                        | K23-Ma0044812 | NCP       | %     | 110      |          |     | 50-150            | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                      | K23-Ma0044812 | NCP       | %     | 113      |          |     | 50-150            | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                      | K23-Ma0044812 | NCP       | %     | 121      |          |     | 50-150            | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                       | K23-Ma0044812 | NCP       | %     | 112      |          |     | 50-150            | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                      | K23-Ma0044812 | NCP       | %     | 117      |          |     | 50-150            | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                        | K23-Ma0044812 | NCP       | %     | 112      |          |     | 50-150            | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                        | K23-Ma0044812 | NCP       | %     | 94       |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>         |               |           |       | Result 1 |          |     |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)        | M23-Ma0057761 | NCP       | %     | 108      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)         | M23-Ma0057761 | NCP       | %     | 116      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)        | M23-Ma0057761 | NCP       | %     | 111      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)     | M23-Ma0057761 | NCP       | %     | 112      |          |     | 50-150            | Pass        |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>             |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                              | M23-Ma0057760 | NCP       | ug/L  | 8.4      | 8.6      | 2.8 | 30%               | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                            | M23-Ma0057760 | NCP       | ug/L  | 14       | 14       | 2.2 | 30%               | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                             | M23-Ma0057760 | NCP       | ug/L  | 89       | 88       | 1.3 | 30%               | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                            | M23-Ma0057760 | NCP       | ug/L  | 9.9      | 9.7      | 1.9 | 30%               | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                              | M23-Ma0057760 | NCP       | ug/L  | 24       | 24       | 1.9 | 30%               | Pass        |                 |
| Perfluorononanoic acid (PFNA)                              | M23-Ma0057760 | NCP       | ug/L  | 0.19     | 0.19     | <1  | 30%               | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                              | M23-Ma0057760 | NCP       | ug/L  | 0.06     | 0.06     | 5.5 | 30%               | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                          | M23-Ma0057760 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                          | M23-Ma0057760 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                        | M23-Ma0057760 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotetradecanoic acid (PFTTeDA)                      | M23-Ma0057760 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |



| Duplicate  |               |     |      |          |          |     |     |      |
|--|---------------|-----|------|----------|----------|-----|-----|------|
| Perfluoroalkyl sulfonamido substances                        |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Ma0057760 | NCP | ug/L | 0.36     | 0.34     | 7.0 | 30% | Pass |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| Perfluoroalkyl sulfonic acids (PFSA)                         |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorobutanesulfonic acid (PFBS)                          | M23-Ma0057760 | NCP | ug/L | 36       | 37       | 2.9 | 30% | Pass |
| Perfluorononanesulfonic acid (PFNS)                          | M23-Ma0057760 | NCP | ug/L | 1.2      | 1.2      | 5.6 | 30% | Pass |
| Perfluoropropanesulfonic acid (PFPrS)                        | M23-Ma0057760 | NCP | ug/L | 13       | 13       | 2.1 | 30% | Pass |
| Perfluoropentanesulfonic acid (PFPeS)                        | M23-Ma0057760 | NCP | ug/L | 39       | 39       | <1  | 30% | Pass |
| Perfluorohexanesulfonic acid (PFHxS)                         | M23-Ma0057760 | NCP | ug/L | 400      | 400      | <1  | 30% | Pass |
| Perfluoroheptanesulfonic acid (PFHpS)                        | M23-Ma0057760 | NCP | ug/L | 21       | 21       | 2.1 | 30% | Pass |
| Perfluorooctanesulfonic acid (PFOS)                          | M23-Ma0057760 | NCP | ug/L | 510      | 460      | 9.0 | 30% | Pass |
| Perfluorodecanesulfonic acid (PFDS)                          | M23-Ma0057760 | NCP | ug/L | 0.12     | 0.12     | 3.1 | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSA)                  |               |     |      | Result 1 | Result 2 | RPD |     |      |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | M23-Ma0057760 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | M23-Ma0057760 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | M23-Ma0057760 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |

**Comments**

This report is split with report with 975318

**Sample Integrity**

|   |     |
|---|-----|
| Custody Seals Intact (if used)  | N/A |
| Attempt to Chill was evident  | Yes |
| Sample correctly preserved  | Yes |
| Appropriate sample containers have been used                            | Yes |
| Sample containers for volatile analysis received with minimal headspace | Yes |
| Samples received within HoldingTime                                     | N/A |
| Some samples have been subcontracted                                    | No  |

**Qualifier Codes/Comments**

| Code | Description  |
|------|--|
| N11  | Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds. |
| N15  | Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).                             |

**Authorised by:**

[Redacted]  
Analytical Services Manager  
Senior Analyst-PFAS

**General Manager**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

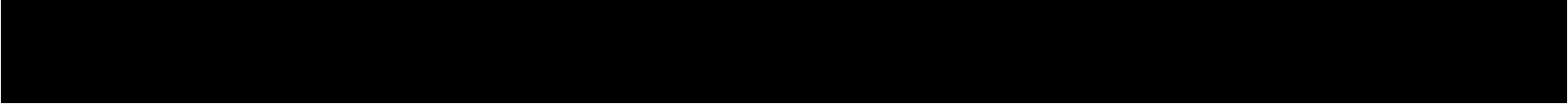
\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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email: EnviroSales@eurofins.com



**Company Name:** Stantec Australia Pty Ltd (VIC)  
**Address:** [Redacted]

**Order No.:**  
**Report #:** 985120  
**Phone:**  
**Fax:**

**Received:** Mar 24, 2023 9:00 AM  
**Due:** May 8, 2023  
**Priority:** 5 Day  
**Contact Name:** [Redacted]

**Project Name:** 0927 LAVERTON  
**Project ID:** DEF19008

Eurofins Analytical Services Manager [Redacted]

| Sample Detail                                  |                   |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|-------------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                   |              |               |        |               | X   |
| External Laboratory                            |                   |              |               |        |               |   |
| No   | Sample ID         | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | 0927_QC205_230321 | Mar 21, 2023 |               | Water  | M23-Ma0060190 | X   |
| Test Counts                                    |                   |              |               |        |               | 1   |

**Chain of Custody**

**PLEASE FORWARD TO EUROFINS**

**Sheet 1 of 1**

| PM Name: [REDACTED]<br>Phone: [REDACTED]<br>Address: [REDACTED]<br>PM Email: [REDACTED]   |               |                  |            |      |  |      |     |                               |      |  |  |
|---|---------------|------------------|------------|------|--|------|-----|-------------------------------|------|--|--|
| Project Number: DEF19008      Site: 0927 (Laverton)<br>Laboratory: Eurofins [REDACTED]  |               |                  |            |      |  |      |     | Analysis: #975318<br>24/03/23 |      |  |  |
| Sample ID   | Laboratory ID | Container        | Sampling   |      | Water  | Soil | Ice | PFAS (28 analytes)            | Hold |  |  |
|   |               |                  | Date       | Time |  |      |     |                               |      |  |  |
| 0927_QC204_230320   | 1             | 2 x PFAS bottles | 20/03/2023 | -    | X  |      |     | X                             |      |  |  |
| 0927_QC205_230321   | 2             | 2 x PFAS bottles | 21/03/2023 | -    | X  |      |     | X                             |      |  |  |
| 0927_QC206_230321   | 3             | 2 x PFAS bottles | 21/03/2023 | -    | X  |      |     | X                             |      |  |  |
| 0927_QC504_230322   | 4             | 2 x PFAS bottles | 22/03/2023 | -    | X  |      |     | X                             |      |  |  |
| Sampler: I attest that the proper field sampling procedures were used during the collection of these samples.      Sampler name: (print and signature) [REDACTED]      Date: 23/03/2023 |               |                  |            |      |  |      |     |                               |      |  |  |
| Relinquished by (Sampler): (print and signature) [REDACTED]   |               |                  | 23/03/2023 | Time | Received by (Courier/Lab): (print and signature) |      |     | Date                          | Time |  |  |
| Relinquished by: (print and signature)  |               |                  | Date       | Time | Received by: (print and signature)               |      |     | Date                          | Time |  |  |
| Relinquished by: (print and signature)  |               |                  | Date       | Time | Received by: (print and signature)               |      |     | Date                          | Time |  |  |

73

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (5 days) [REDACTED]

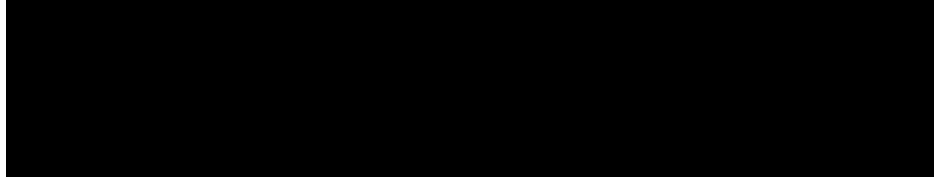
Please circle

DATE: 23/03/23      23/03/23 - 15:20  
 TIME: 9:00 AM  
 COURIER: YES  
 TEMPERATURE 4.3  
 ATTEMP TO CHILL: YES NO

## Tyrone Gowans

---

**From:**  
**Sent:**  
**To:**  
**Subject:**



**CAUTION: EXTERNAL EMAIL** - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

[Redacted],

Can we please request to have the results for following samples as two separate lab reports?

975318-W  
Project name 0927 LAVERTON

QC205 and QC206.

If possible, can you pls reissue by COB today?

Thanks

[Redacted]

[Redacted]

Senior Environmental Scientist

[Redacted]

[Redacted]

Stantec Australia

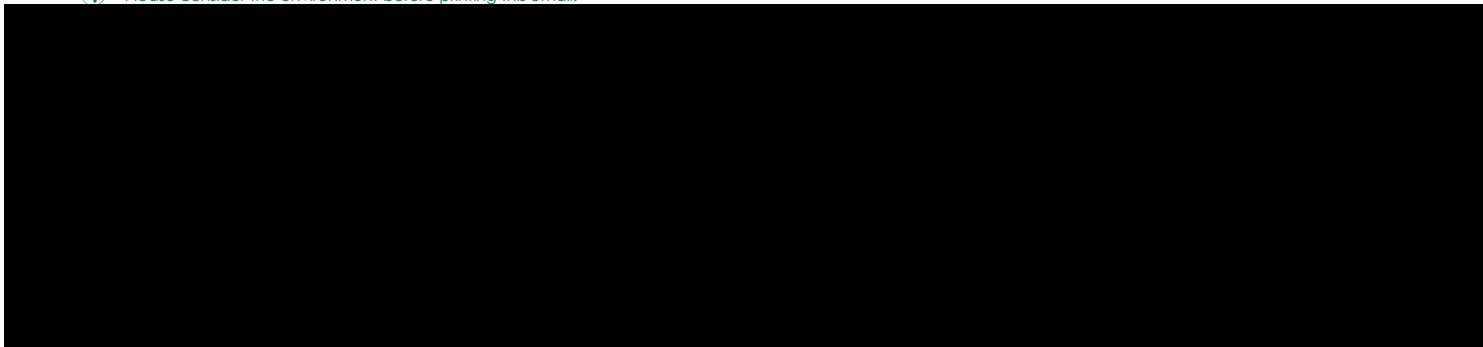
[Redacted]



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## Sample Receipt Advice

**Company name:** Stantec Australia Pty Ltd (VIC)  
**Contact name:** [REDACTED]  
**Project name:** 0927 LAVERTON  
**Project ID:** DEF19008  
**Turnaround time:** 5 Day  
**Date/Time received:** Mar 24, 2023 9:00 AM  
**Eurofins reference:** 985122

## Sample Information

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

## Notes

## Contact

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

[REDACTED]

Results will be delivered electronically via email to [REDACTED].

*Note: A copy of these results will also be delivered to the general Stantec Australia Pty Ltd (VIC) email address.*

**Stantec Australia Pty Ltd**  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]

**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 1254**

 Accredited for compliance with ISO/IEC 17025 – Testing  
 NATA is a signatory to the ILAC Mutual Recognition  
 Arrangement for the mutual recognition of the  
 equivalence of testing, medical testing, calibration,  
 inspection, proficiency testing scheme providers and  
 reference materials producers reports and certificates.

**Attention:** [REDACTED]

**Report** 985122-W  
 Project name 0927 LAVERTON  
 Project ID DEF19008  
 Received Date Mar 24, 2023

| Client Sample ID  | LOR  | Unit | 0927_QC206_2<br>30321     |
|---|------|------|---------------------------|
| <b>Sample Matrix</b>  |      |      | <b>Water</b>              |
| <b>Eurofins Sample No.</b>  |      |      | <b>M23-<br/>Ma0060191</b> |
| <b>Date Sampled</b>   |      |      | <b>Mar 21, 2023</b>       |
| Test/Reference  | LOR  | Unit |                           |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>                              |      |      |                           |
| Perfluorobutanoic acid (PFBA) <sup>N11</sup>                                | 0.05 | ug/L | < 0.05                    |
| Perfluoropentanoic acid (PFPeA) <sup>N11</sup>                              | 0.01 | ug/L | 0.03                      |
| Perfluorohexanoic acid (PFHxA) <sup>N11</sup>                               | 0.01 | ug/L | 0.03                      |
| Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01                    |
| Perfluorooctanoic acid (PFOA) <sup>N11</sup>                                | 0.01 | ug/L | 0.02                      |
| Perfluorononanoic acid (PFNA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                    |
| Perfluorodecanoic acid (PFDA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                    |
| Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                    |
| Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                    |
| Perfluorotridecanoic acid (PFTeDA) <sup>N15</sup>                           | 0.01 | ug/L | < 0.01                    |
| Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>                         | 0.01 | ug/L | < 0.01                    |
| 13C4-PFBA (surr.)   | 1    | %    | 59                        |
| 13C5-PFPeA (surr.)  | 1    | %    | 74                        |
| 13C5-PFHxA (surr.)  | 1    | %    | 71                        |
| 13C4-PFHpA (surr.)  | 1    | %    | 75                        |
| 13C8-PFOA (surr.)   | 1    | %    | 73                        |
| 13C5-PFNA (surr.)   | 1    | %    | 72                        |
| 13C6-PFDA (surr.)   | 1    | %    | 83                        |
| 13C2-PFUnDA (surr.)   | 1    | %    | 53                        |
| 13C2-PFDoDA (surr.)   | 1    | %    | 52                        |
| 13C2-PFTeDA (surr.)   | 1    | %    | 55                        |
| <b>Perfluoroalkyl sulfonamido substances</b>                                |      |      |                           |
| Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>                           | 0.05 | ug/L | < 0.05                    |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>            | 0.05 | ug/L | < 0.05                    |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>             | 0.05 | ug/L | < 0.05                    |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) <sup>N11</sup> | 0.05 | ug/L | < 0.05                    |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) <sup>N11</sup>  | 0.05 | ug/L | < 0.05                    |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>    | 0.05 | ug/L | < 0.05                    |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>   | 0.05 | ug/L | < 0.05                    |
| 13C8-FOSA (surr.)   | 1    | %    | 83                        |
| D3-N-MeFOSA (surr.)   | 1    | %    | 73                        |

|   |      |      |                               |
|---|------|------|-------------------------------|
| <b>Client Sample ID</b>   |      |      | <b>0927_QC206_2<br/>30321</b> |
| <b>Sample Matrix</b>  |      |      | <b>Water</b>                  |
| <b>Eurofins Sample No.</b>  |      |      | <b>M23-<br/>Ma0060191</b>     |
| <b>Date Sampled</b>   |      |      | <b>Mar 21, 2023</b>           |
| Test/Reference  | LOR  | Unit |                               |
| <b>Perfluoroalkyl sulfonamido substances</b>                          |      |      |                               |
| D5-N-EtFOSA (surr.)   | 1    | %    | 68                            |
| D7-N-MeFOSE (surr.)   | 1    | %    | 52                            |
| D9-N-EtFOSE (surr.)   | 1    | %    | 52                            |
| D5-N-EtFOSAA (surr.)  | 1    | %    | 57                            |
| D3-N-MeFOSAA (surr.)  | 1    | %    | 59                            |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                          |      |      |                               |
| Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>                    | 0.01 | ug/L | 0.01                          |
| Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                        |
| Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01                        |
| Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>                  | 0.01 | ug/L | 0.01                          |
| Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>                   | 0.01 | ug/L | 0.08                          |
| Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01                        |
| Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>                    | 0.01 | ug/L | 0.08                          |
| Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                        |
| 13C3-PFBS (surr.)   | 1    | %    | 74                            |
| 18O2-PFHxS (surr.)  | 1    | %    | 74                            |
| 13C8-PFOS (surr.)   | 1    | %    | 74                            |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>                    |      |      |                               |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                        |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) <sup>N11</sup>     | 0.05 | ug/L | < 0.05                        |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                        |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup> | 0.01 | ug/L | < 0.01                        |
| 13C2-4:2 FTSA (surr.)   | 1    | %    | 97                            |
| 13C2-6:2 FTSA (surr.)   | 1    | %    | 91                            |
| 13C2-8:2 FTSA (surr.)   | 1    | %    | 64                            |
| 13C2-10:2 FTSA (surr.)  | 1    | %    | 56                            |
| <b>PFASs Summations</b>   |      |      |                               |
| Sum (PFHxS + PFOS)*   | 0.01 | ug/L | 0.16                          |
| Sum of US EPA PFAS (PFOS + PFOA)*                                     | 0.01 | ug/L | 0.1                           |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                           | 0.01 | ug/L | 0.18                          |
| Sum of WA DWER PFAS (n=10)*   | 0.05 | ug/L | 0.25                          |
| Sum of PFASs (n=30)*  | 0.1  | ug/L | 0.26                          |



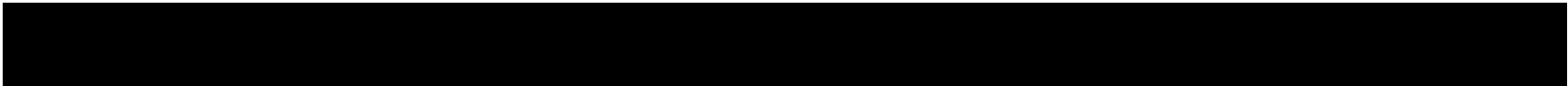
**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

| Description   | Testing Site | Extracted    | Holding Time |
|---|--------------|--------------|--------------|
| Per- and Polyfluoroalkyl Substances (PFASs)                       |              |              |              |
| Perfluoroalkyl carboxylic acids (PFCAs)                           | Melbourne    | Mar 27, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonamido substances                             | Melbourne    | Mar 27, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonic acids (PFSAs)                             | Melbourne    | Mar 27, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)                      | Melbourne    | Mar 27, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| PFASs Summations  | Melbourne    | Mar 24, 2023 |              |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |

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|                      |                                 |                   |        |                      |  |
|----------------------|---------------------------------|-------------------|--------|----------------------|--|
| <b>Company Name:</b> | Stantec Australia Pty Ltd (VIC) | <b>Order No.:</b> |        | <b>Received:</b>     | Mar 24, 2023 9:00 AM                                     |
| <b>Address:</b>      | [Redacted]                      | <b>Report #:</b>  | 985122 | <b>Due:</b>          | May 8, 2023  |
|                      | [Redacted]                      | <b>Phone:</b>     |        | <b>Priority:</b>     | 5 Day  |
|                      | [Redacted]                      | <b>Fax:</b>       |        | <b>Contact Name:</b> | [Redacted]   |
| <b>Project Name:</b> | 0927 LAVERTON                   |                   |        |                      |  |
| <b>Project ID:</b>   | DEF19008                        |                   |        |                      |  |
|                      |                                 |                   |        |                      | <b>Eurofins Analytical Services Manager :</b> [Redacted] |

| Sample Detail                                  |                   |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |   |
|--|-------------------|--------------|---------------|--------|---------------|---|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                   |              |               |        |               |   | X |
| External Laboratory                            |                   |              |               |        |               |   |   |
| No   | Sample ID         | Sample Date  | Sampling Time | Matrix | LAB ID        |   |   |
| 1  | 0927_QC206_230321 | Mar 21, 2023 |               | Water  | M23-Ma0060191 | X   |   |
| <b>Test Counts</b>                             |                   |              |               |        |               | 1   |   |

**Internal Quality Control Review and Glossary**
**General**

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

**Holding Times**

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**Units**

|  |   |  |
|--|---|--|
| <b>mg/kg:</b> milligrams per kilogram            | <b>mg/L:</b> milligrams per litre         | <b>µg/L:</b> micrograms per litre  |
| <b>ppm:</b> parts per million                    | <b>ppb:</b> parts per billion             | <b>%:</b> Percentage   |
| <b>org/100 mL:</b> Organisms per 100 millilitres | <b>NTU:</b> Nephelometric Turbidity Units | <b>MPN/100 mL:</b> Most Probable Number of organisms per 100 millilitres |
| <b>CFU:</b> Colony forming unit                  |   |  |

**Terms**

|                         |   |
|-------------------------|---|
| <b>APHA</b>             | American Public Health Association  |
| <b>COC</b>              | Chain of Custody  |
| <b>CP</b>               | Client Parent - QC was performed on samples pertaining to this report   |
| <b>CRM</b>              | Certified Reference Material (ISO17034) - reported as percent recovery.   |
| <b>Dry</b>              | Where a moisture has been determined on a solid sample the result is expressed on a dry basis.  |
| <b>Duplicate</b>        | A second piece of analysis from the same sample and reported in the same units as the result to show comparison.  |
| <b>LOR</b>              | Limit of Reporting.   |
| <b>LCS</b>              | Laboratory Control Sample - reported as percent recovery.   |
| <b>Method Blank</b>     | In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.  |
| <b>NCP</b>              | Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.  |
| <b>RPD</b>              | Relative Percent Difference between two Duplicate pieces of analysis.   |
| <b>SPIKE</b>            | Addition of the analyte to the sample and reported as percentage recovery.  |
| <b>SRA</b>              | Sample Receipt Advice   |
| <b>Surr - Surrogate</b> | The addition of a like compound to the analyte target and reported as percentage recovery.  |
| <b>TBTO</b>             | Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| <b>TCLP</b>             | Toxicity Characteristic Leaching Procedure  |
| <b>TEQ</b>              | Toxic Equivalency Quotient or Total Equivalence   |
| <b>QSM</b>              | US Department of Defense Quality Systems Manual Version 5.4   |
| <b>US EPA</b>           | United States Environmental Protection Agency   |
| <b>WA DWER</b>          | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA   |

**QC - Acceptance Criteria**

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

**QC Data General Comments**

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

**Quality Control Results**

| Test   | Units | Result 1 |  | Acceptance Limits | Pass Limits | Qualifying Code |
|--|-------|----------|--|-------------------|-------------|-----------------|
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |       |          |  |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                 |       |          |  |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |       |          |  |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>LCS - % Recovery</b>                                      |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | %     | 127      |  | 50-150            | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | %     | 104      |  | 50-150            | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | %     | 106      |  | 50-150            | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | %     | 104      |  | 50-150            | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | %     | 110      |  | 50-150            | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | %     | 114      |  | 50-150            | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | %     | 117      |  | 50-150            | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | %     | 113      |  | 50-150            | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | %     | 112      |  | 50-150            | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | %     | 108      |  | 50-150            | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | %     | 121      |  | 50-150            | Pass        |                 |

| Test   | Units         | Result 1  |       |          | Acceptance Limits | Pass Limits       | Qualifying Code |                 |
|--|---------------|-----------|-------|----------|-------------------|-------------------|-----------------|-----------------|
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | %             | 104       |       |          | 50-150            | Pass              |                 |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | %             | 102       |       |          | 50-150            | Pass              |                 |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | %             | 98        |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | %             | 102       |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | %             | 100       |       |          | 50-150            | Pass              |                 |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | %             | 106       |       |          | 50-150            | Pass              |                 |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | %             | 113       |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA's)</b>                |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | %             | 93        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorononanesulfonic acid (PFNS)                          | %             | 101       |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | %             | 89        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | %             | 88        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | %             | 101       |       |          | 50-150            | Pass              |                 |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | %             | 102       |       |          | 50-150            | Pass              |                 |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | %             | 109       |       |          | 50-150            | Pass              |                 |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | %             | 97        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>         |               |           |       |          |                   |                   |                 |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | %             | 94        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | %             | 112       |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | %             | 111       |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | %             | 109       |       |          | 50-150            | Pass              |                 |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |                   | Acceptance Limits | Pass Limits     | Qualifying Code |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanoic acid (PFBA)                                | K23-Ma0044812 | NCP       | %     | 117      |                   | 50-150            | Pass            |                 |
| Perfluoropentanoic acid (PFPeA)                              | K23-Ma0044812 | NCP       | %     | 124      |                   | 50-150            | Pass            |                 |
| Perfluorohexanoic acid (PFHxA)                               | K23-Ma0044812 | NCP       | %     | 116      |                   | 50-150            | Pass            |                 |
| Perfluoroheptanoic acid (PFHpA)                              | K23-Ma0044812 | NCP       | %     | 119      |                   | 50-150            | Pass            |                 |
| Perfluorooctanoic acid (PFOA)                                | K23-Ma0044812 | NCP       | %     | 120      |                   | 50-150            | Pass            |                 |
| Perfluorononanoic acid (PFNA)                                | M23-Ma0057761 | NCP       | %     | 107      |                   | 50-150            | Pass            |                 |
| Perfluorodecanoic acid (PFDA)                                | M23-Ma0057761 | NCP       | %     | 112      |                   | 50-150            | Pass            |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Ma0057761 | NCP       | %     | 120      |                   | 50-150            | Pass            |                 |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Ma0057761 | NCP       | %     | 122      |                   | 50-150            | Pass            |                 |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Ma0057761 | NCP       | %     | 117      |                   | 50-150            | Pass            |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Ma0057761 | NCP       | %     | 133      |                   | 50-150            | Pass            |                 |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | K23-Ma0044812 | NCP       | %     | 119      |                   | 50-150            | Pass            |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Ma0057761 | NCP       | %     | 116      |                   | 50-150            | Pass            |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Ma0057761 | NCP       | %     | 109      |                   | 50-150            | Pass            |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Ma0057761 | NCP       | %     | 112      |                   | 50-150            | Pass            |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Ma0057761 | NCP       | %     | 109      |                   | 50-150            | Pass            |                 |

| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
|--|---------------|-----------|-------|----------|----------|-----|-------------------|-------------|-----------------|
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)  | M23-Ma0057761 | NCP       | %     | 108      |          |     | 50-150            | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | M23-Ma0057761 | NCP       | %     | 111      |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                |               |           |       | Result 1 |          |     |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                        | K23-Ma0044812 | NCP       | %     | 94       |          |     | 50-150            | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                        | K23-Ma0044812 | NCP       | %     | 110      |          |     | 50-150            | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                      | K23-Ma0044812 | NCP       | %     | 113      |          |     | 50-150            | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                      | K23-Ma0044812 | NCP       | %     | 121      |          |     | 50-150            | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                       | K23-Ma0044812 | NCP       | %     | 112      |          |     | 50-150            | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                      | K23-Ma0044812 | NCP       | %     | 117      |          |     | 50-150            | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                        | K23-Ma0044812 | NCP       | %     | 112      |          |     | 50-150            | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                        | K23-Ma0044812 | NCP       | %     | 94       |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>         |               |           |       | Result 1 |          |     |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)        | M23-Ma0057761 | NCP       | %     | 108      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)         | M23-Ma0057761 | NCP       | %     | 116      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)        | M23-Ma0057761 | NCP       | %     | 111      |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)     | M23-Ma0057761 | NCP       | %     | 112      |          |     | 50-150            | Pass        |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>             |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                              | M23-Ma0057760 | NCP       | ug/L  | 8.4      | 8.6      | 2.8 | 30%               | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                            | M23-Ma0057760 | NCP       | ug/L  | 14       | 14       | 2.2 | 30%               | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                             | M23-Ma0057760 | NCP       | ug/L  | 89       | 88       | 1.3 | 30%               | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                            | M23-Ma0057760 | NCP       | ug/L  | 9.9      | 9.7      | 1.9 | 30%               | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                              | M23-Ma0057760 | NCP       | ug/L  | 24       | 24       | 1.9 | 30%               | Pass        |                 |
| Perfluorononanoic acid (PFNA)                              | M23-Ma0057760 | NCP       | ug/L  | 0.19     | 0.19     | <1  | 30%               | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                              | M23-Ma0057760 | NCP       | ug/L  | 0.06     | 0.06     | 5.5 | 30%               | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                          | M23-Ma0057760 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                          | M23-Ma0057760 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                        | M23-Ma0057760 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotetradecanoic acid (PFTTeDA)                      | M23-Ma0057760 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |

| Duplicate  |               |     |      |          |          |     |     |      |
|--|---------------|-----|------|----------|----------|-----|-----|------|
| Perfluoroalkyl sulfonamido substances                        |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Ma0057760 | NCP | ug/L | 0.36     | 0.34     | 7.0 | 30% | Pass |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| Perfluoroalkyl sulfonic acids (PFSA)                         |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorobutanesulfonic acid (PFBS)                          | M23-Ma0057760 | NCP | ug/L | 36       | 37       | 2.9 | 30% | Pass |
| Perfluorononanesulfonic acid (PFNS)                          | M23-Ma0057760 | NCP | ug/L | 1.2      | 1.2      | 5.6 | 30% | Pass |
| Perfluoropropanesulfonic acid (PFPrS)                        | M23-Ma0057760 | NCP | ug/L | 13       | 13       | 2.1 | 30% | Pass |
| Perfluoropentanesulfonic acid (PFPeS)                        | M23-Ma0057760 | NCP | ug/L | 39       | 39       | <1  | 30% | Pass |
| Perfluorohexanesulfonic acid (PFHxS)                         | M23-Ma0057760 | NCP | ug/L | 400      | 400      | <1  | 30% | Pass |
| Perfluoroheptanesulfonic acid (PFHpS)                        | M23-Ma0057760 | NCP | ug/L | 21       | 21       | 2.1 | 30% | Pass |
| Perfluorooctanesulfonic acid (PFOS)                          | M23-Ma0057760 | NCP | ug/L | 510      | 460      | 9.0 | 30% | Pass |
| Perfluorodecanesulfonic acid (PFDS)                          | M23-Ma0057760 | NCP | ug/L | 0.12     | 0.12     | 3.1 | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSA)                  |               |     |      | Result 1 | Result 2 | RPD |     |      |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | M23-Ma0057760 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | M23-Ma0057760 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | M23-Ma0057760 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | M23-Ma0057760 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |

**Comments**

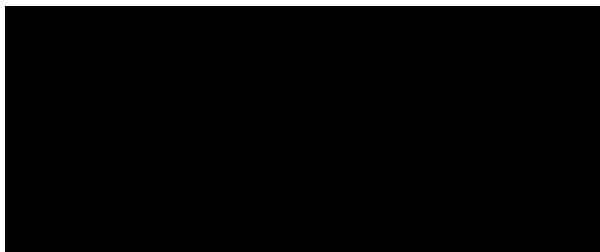
This is a split report with 985120 and 975318

**Sample Integrity**

|   |     |
|---|-----|
| Custody Seals Intact (if used)  | N/A |
| Attempt to Chill was evident  | Yes |
| Sample correctly preserved  | Yes |
| Appropriate sample containers have been used                            | Yes |
| Sample containers for volatile analysis received with minimal headspace | Yes |
| Samples received within HoldingTime                                     | N/A |
| Some samples have been subcontracted                                    | No  |

**Qualifier Codes/Comments**

| Code | Description  |
|------|--|
| N11  | Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds. |
| N15  | Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).                             |

**Authorised by:**

**General Manager**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

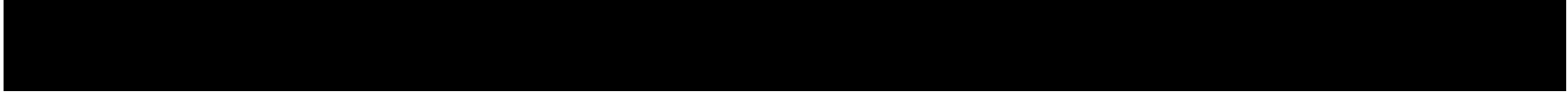
Measurement uncertainty of test data is available on request or please [click here](#).

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**Company Name:** Stantec Australia Pty Ltd (VIC)  
**Address:** [Redacted]  
[Redacted]  
[Redacted]

**Order No.:**  
**Report #:** 985122  
**Phone:**  
**Fax:**

**Received:** Mar 24, 2023 9:00 AM  
**Due:** May 8, 2023  
**Priority:** 5 Day  
**Contact Name:** [Redacted]

**Project Name:** 0927 LAVERTON  
**Project ID:** DEF19008

**Eurofins Analytical Services Manager :** [Redacted]

| Sample Detail                                  |                   |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|-------------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                   |              |               |        |               | X   |
| External Laboratory                            |                   |              |               |        |               |   |
| No   | Sample ID         | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | 0927_QC206_230321 | Mar 21, 2023 |               | Water  | M23-Ma0060191 | X   |
| Test Counts                                    |                   |              |               |        |               | 1   |

APPENDIX

D

CALIBRATION CERTIFICATES

| Event | Monitoring Well Status | Monitoring Well ID | Alternative ID | Date       | Easting    | Northing    | Top of Well Casing Elevation (m(AHD)) | Depth to Base of Monitoring Well (metres) | Depth to Groundwater (metres) | Corrected Water Elevation (m(AHD)) | Qualitative Turbidity | Hydrastave Deployment Depth (m) | Observations   | Temp (Co) | DO (mg/L) | EC (µS/cm) | pH   | Eh (mV) | TDS     |   |
|-------|------------------------|--------------------|----------------|------------|------------|-------------|---------------------------------------|---|-------------------------------|------------------------------------|-----------------------|---------------------------------|--|-----------|-----------|------------|------|---------|---------|---|
| E1    | Gauge Only             | MW100              | -              | 14/03/2023 | 302155.42  | 5806515.51  | 12.64                                 | 10.81                                     | 5.276                         | 7.364                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW101              | -              | 14/03/2023 | 302391.57  | 5806651.44  | -                                     | -   | -                             | -                                  | -                     | -                               | Unable to open, rusted shut  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge and Sample       | MW102              | -              | 14/03/2023 | 302687.38  | 5806734.66  | 10.986                                | 10.685                                    | 4.233                         | 6.753                              | Low                   | 10.185                          | Clear water colour   | 22.4      | 4.34      | 7790       | 7.66 | 79      | 5063.5  |   |
| E1    | Gauge and Sample       | MW103              | -              | 14/03/2023 | 302729.82  | 5806598.99  | 10.785                                | 6.782                                     | 4.651                         | 6.134                              | Low                   | 6.282                           | Cloudy water colour, 10% turbidity   | 19.3      | 1.16      | 4979       | 7.65 | 31.9    | 3236.35 |   |
| E1    | Gauge Only             | MW104              | -              | 14/03/2023 | 302867.02  | 5806626.67  | -                                     | -   | -                             | -                                  | -                     | -                               | Gatic well lid rusted shut   | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW105              | -              | 14/03/2023 | 302921.77  | 5806649.94  | 10.477                                | 7.096                                     | 4.163                         | 6.314                              | Medium                | 6.596                           | Cloudy water, 10% turbidity. Potential sulfuric odour, black suspended particles | 21.3      | 0.88      | 4449       | 7.54 | -97.5   | 2891.85 |   |
| E1    | Gauge Only             | MW106              | -              | 14/03/2023 | 303030.84  | 5806668.96  | 10.637                                | 6.398                                     | 3.825                         | 6.812                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW107              | -              | 14/03/2023 | 303054.13  | 5806738.37  | 11.628                                | 8.584                                     | 5.932                         | 5.696                              | Low                   | 8.084                           | Clear water colour, 5% turbidity   | 21.1      | 1.04      | 8242       | 6.92 | -97.2   | 5357.3  |   |
| E1    | Gauge Only             | MW108              | -              | 14/03/2023 | 303192.38  | 5806779.71  | 10.858                                | 8.163                                     | 5.497                         | 5.361                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW109              | -              | 14/03/2023 | 303283.85  | 5806787.69  | 11.054                                | 7.792                                     | 5.69                          | 5.364                              | Low                   | 7.292                           | Clear water colour, 5% turbidity   | 18.8      | 0.74      | 971        | 7.16 | 105.5   | 631.15  |   |
| E1    | Gauge and Sample       | MW110              | -              | 15/03/2023 | 303500.83  | 5806961.55  | 11.41                                 | 9.945                                     | 6.234                         | 5.176                              | Low                   | 9.445                           | Clear water colour, 5% turbidity   | 20.2      | 3.32      | 6054       | 7.46 | 77.7    | 3935.1  |   |
| E1    | Gauge Only             | MW111              | -              | 15/03/2023 | 303549.68  | 5807508.41  | 11.428                                | 7.807                                     | 4.725                         | 6.703                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW112              | -              | 15/03/2023 | 303813.43  | 5807643.46  | 9.201                                 | 8.69                                      | 3.542                         | 5.659                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW113              | -              | 15/03/2023 | 303790.74  | 5808047.06  | 13.458                                | 10.35                                     | 6.616                         | 6.842                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW114              | -              | 15/03/2023 | 303423.22  | 5808108.35  | 11.779                                | -   | 1.892                         | 9.887                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW115              | -              | 14/03/2023 | 302706.34  | 5807872.56  | 21.118                                | 15.81                                     | 9.489                         | 11.629                             | Low                   | 15.31                           | Clear water colour, 5% turbidity   | 24.3      | 1.03      | 6036       | 7.79 | 73.9    | 3923.4  |   |
| E1    | Gauge Only             | MW116              | -              | 14/03/2023 | 302540.47  | 5807566.23  | 14.862                                | 12.67                                     | 3.642                         | 11.22                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW117              | -              | 14/03/2023 | 302685.11  | 5807194.17  | 14.118                                | 9.71                                      | 5.808                         | 8.31                               | Low                   | 9.21                            | Clear water colour   | 21.7      | 3.43      | 7576       | 7.52 | 64      | 4924.4  |   |
| E1    | Gauge and Sample       | MW118              | -              | 14/03/2023 | 302689.62  | 5807069.21  | 13.073                                | 7.62                                      | 4.962                         | 8.111                              | Low                   | 7.12                            | Clear water colour   | 22.7      | 2.62      | 4749       | 8.06 | 83.1    | 3086.85 |   |
| E1    | Gauge Only             | MW119              | -              | 14/03/2023 | 302749.8   | 5806862.19  | 12.03                                 | -   | -                             | -                                  | -                     | -                               | Gatic lid rusted shut  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW120              | -              | 14/03/2023 | 302498.3   | 5806688.12  | 11.316                                | 8.9                                       | 4.097                         | 7.219                              | Low                   | 8.4                             | Cloudy water colour, 5% water colour   | 21.4      | 1.34      | 3099       | 8.55 | 60.3    | 2014.35 |   |
| E1    | Gauge and Sample       | MW121              | -              | 15/03/2023 | 302599.82  | 5805814.08  | 4.84                                  | 9.66                                      | 1.097                         | 3.743                              | Low                   | 9.16                            | Clear water colour   | 23.6      | 3.33      | 8244       | 7.4  | 66.8    | 5358.6  |   |
| E1    | Gauge Only             | MW122              | -              | 15/03/2023 | 302734.651 | 5805834.31  | 4.339                                 | -   | -                             | -                                  | -                     | -                               | Could not locate well  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW123              | -              | 15/03/2023 | 303075.85  | 5805876.09  | 5.97                                  | 8.461                                     | 2.528                         | 3.442                              | Low                   | 7.961                           | Clear water colour, 5% turbidity   | 19.8      | 3.85      | 7997       | 7.03 | 84.5    | 5198.05 |   |
| E1    | Gauge and Sample       | MW124              | -              | 15/03/2023 | 302369.98  | 5806321.5   | 10.79                                 | 7.218                                     | 4.304                         | 6.486                              | Low                   | 6.718                           | Clear water colour, 7% turbidity   | 18.5      | 1.58      | 1016       | 6.99 | 94.2    | 660.4   |   |
| E1    | Gauge Only             | MW125              | -              | 15/03/2023 | 302572.42  | 5806333.83  | 11.207                                | 8.589                                     | 5.381                         | 5.826                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW126              | -              | 15/03/2023 | 302781.66  | 5806362.9   | 9.224                                 | 6.972                                     | 3.949                         | 5.275                              | Low                   | 6.472                           | Clear water colour, 5% turbidity   | 19.5      | 1.36      | 7659       | 7.27 | 95.4    | 4978.35 |   |
| E1    | Gauge Only             | MW127              | -              | 15/03/2023 | 301841.02  | 5807065.33  | 14.75                                 | -   | -                             | -                                  | -                     | -                               | Could not locate well  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW128              | -              | 15/03/2023 | 301547.12  | 5806935.66  | 15.031                                | 10.01                                     | 4.438                         | 10.593                             | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW130              | -              | 15/03/2023 | 301059.66  | 5806873.65  | 15.824                                | 9.67                                      | 4.489                         | 11.335                             | Low                   | 9.17                            | Clear water colour   | 21.1      | 2.19      | 15204      | 7.79 | 104.6   | 9882.6  |   |
| E1    | Gauge and Sample       | MW131              | -              | 15/03/2023 | 300802.92  | 5806882.37  | 17.146                                | 10.06                                     | 5.742                         | 11.404                             | Low                   | 9.56                            | Clear water colour, 5% turbidity   | 19.2      | 0.55      | 14404      | 7.35 | 98.5    | 9362.8  |   |
| E1    | Gauge Only             | MW132              | -              | 15/03/2023 | 301146.76  | 5807249.68  | 16.547                                | 8.715                                     | 4.368                         | 12.179                             | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW133              | -              | 15/03/2023 | 301391.78  | 5807159.24  | 16.202                                | 9.215                                     | 4.676                         | 11.526                             | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW134              | -              | 15/03/2023 | 302531.45  | 5807531.45  | 14.49                                 | 8.661                                     | 3.324                         | 11.166                             | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW135              | -              | 15/03/2023 | 301824.03  | 5807652.59  | 16.789                                | 7.904                                     | 3.885                         | 12.904                             | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW136              | -              | 15/03/2023 | 301361.32  | 5807556.68  | 17.449                                | 6.347                                     | 4.734                         | 12.715                             | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW137              | -              | 15/03/2023 | 300747.95  | 5807149.67  | 18.026                                | 10.22                                     | 6.078                         | 11.948                             | Low                   | 9.72                            | Cloudy water, 10% turbidity  | 17.9      | 1.66      | 5486       | 7.78 | 54.8    | 3565.9  |   |
| E1    | Gauge and Sample       | MW138              | -              | 15/03/2023 | 303491.26  | 5806852.41  | 10.72                                 | 8.95                                      | 5.597                         | 5.123                              | Low                   | 8.45                            | Clear water, 3% turbidity.   | 21.8      | 1.76      | 3958       | 7.47 | 66.6    | 2572.7  |   |
| E1    | Gauge and Sample       | MW139              | -              | 15/03/2023 | 303450.4   | 5806941.05  | 11.076                                | 9.312                                     | 5.71                          | 5.366                              | Low                   | 8.812                           | Clear water colour, 5% turbidity   | 21.5      | 2.08      | 6841       | 7.36 | 53.4    | 4446.65 |   |
| E1    | Gauge and Sample       | MW140              | -              | 15/03/2023 | 303495.33  | 5807050.82  | 10.437                                | 9.25                                      | 4.909                         | 5.528                              | Medium                | 8.75                            | Cloudy water, 20% turbidity.   | 21        | 1.59      | 9913       | 7.01 | -11     | 6443.45 |   |
| E1    | Gauge and Sample       | MW144              | GW130/1        | 14/03/2023 | 303197.922 | 5807203.456 | 12.656                                | 10.16                                     | 5.661                         | 6.995                              | Low                   | 9.66                            | Cloudy water, 5% turbidity   | 23.3      | 2.17      | 9847       | 7.52 | 78.2    | 6400.55 |   |
| E1    | Gauge Only             | MW145              | GW130/2        | 14/03/2023 | 303159.174 | 5807344.231 | 12.359                                | 9.91                                      | 4.514                         | 7.845                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW146              | GW130/3        | 14/03/2023 | 303019.4   | 5807342.741 | 13.145                                | 13.051                                    | 4.682                         | 8.463                              | Low                   | 12.551                          | Clear water colour   | 24        | 2.31      | 10238      | 7.29 | 77.2    | 6654.7  |   |
| E1    | Gauge and Sample       | MW152              | GW155/6        | 15/03/2023 | 302280.15  | 5806408.9   | 11.638                                | 8.231                                     | 4.36                          | 7.278                              | Low                   | 7.731                           | Clear water colour, 3% turbidity. Possible HC odour                              | 20.9      | 0.83      | 1142       | 7.11 | -43.9   | 742.3   |   |
| E1    | Gauge Only             | MW154              | GW2/1          | 14/03/2023 | 302498.9   | 5806568.02  | 11.55                                 | 11.967                                    | 4.833                         | 6.717                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW155              | GW2/2          | 14/03/2023 | 302443.03  | 5806586.26  | 11.646                                | 8.109                                     | 4.804                         | 6.842                              | Low                   | 7.609                           | Clear water colour, 5% turbidity   | 20.5      | 1.67      | 1315       | 8.53 | 62.8    | 854.75  |   |
| E1    | Gauge Only             | MW157              | GW2/4          | 14/03/2023 | 302451.17  | 5806532.54  | 11.581                                | 7.745                                     | 4.57                          | 7.011                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge Only             | MW159              | GW2/6          | 14/03/2023 | 302446.78  | 5806497.86  | 11.096                                | 7.038                                     | 4.04                          | 7.056                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       |   |
| E1    | Gauge and Sample       | MW163              | GW34/1         | 14/03/2023 | 302793.48  | 5807022.21  | 12.87                                 | 11.324                                    | 5.429                         | 7.441                              | Low                   | 10.824                          | Infested with insects, clear water colour, 7% turbidity                          | 20.7      | 0.71      | 3398       | 7.72 | 91.7    | 2208.7  |   |

| Event | Monitoring Well Status | Monitoring Well ID | Alternative ID | Date       | Easting    | Northing    | Top of Well Casing Elevation (m(AGD)) | Depth to Base of Monitoring Well (m(AGD)) | Depth to Groundwater (m(AGD)) | Corrected Water Elevation (m(AGD)) | Qualitative Turbidity | Hydrastave Deployment Depth (m) | Observations   | Temp (Co) | DO (mg/L) | EC (µS/cm) | pH   | Eh (mV) | TDS     |   |
|-------|------------------------|--------------------|----------------|------------|------------|-------------|---------------------------------------|---|-------------------------------|------------------------------------|-----------------------|---------------------------------|--|-----------|-----------|------------|------|---------|---------|---|
| E1    | Gauge Only             | MW164              | GW36/1         | 14/03/2023 | 302732.68  | 5807188.71  | 13.2                                  | 10.858                                    | 5.055                         | 8.145                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW165              | GW514/1        | 15/03/2023 | 303466.97  | 5807309.33  | 10.6                                  | 13.45                                     | 3.827                         | 6.773                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW168              | GW582/2        | 14/03/2023 | 302501.41  | 5806491.89  | 11.446                                | 7.982                                     | 4.771                         | 6.675                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW171              | GW582/5        | 14/03/2023 | 302453.5   | 5806452.14  | 12.422                                | 8.745                                     | 5.489                         | 6.933                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW173              | GW582/7        | 14/03/2023 | 302479.95  | 5806461.83  | 12.255                                | 8.9                                       | 5.429                         | 6.826                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW175              | GW598/1        | 15/03/2023 | 303486.44  | 5807298.83  | 10.6                                  | 12.41                                     | 3.889                         | 6.711                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW176              | GW7/1          | 14/03/2023 | 302506.69  | 5806616.11  | 11.34                                 | 9.05                                      | 4.401                         | 6.939                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW181              | GW7/14         | 14/03/2023 | 302550.25  | 5806523.31  | 11.171                                | 6.671                                     | 4.424                         | 6.747                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge and Sample       | MW182              | GW7/15         | 14/03/2023 | 302599.22  | 5806504.882 | 12.036                                | 8.1                                       | 5.812                         | 6.224                              | Low                   | 7.6                             | Clear water colour   | 20.2      | 1.25      | 7001       | 7.66 | 76.5    | 4550.65 |   |
| E1    | Gauge and Sample       | MW185              | GW7/5          | 14/03/2023 | 302485.67  | 5806605.94  | 11.191                                | 8.32                                      | 4.556                         | 6.635                              | Low                   | 7.82                            | Clear water colour   | 20.6      | 2.36      | 1001       | 9.05 | 37.1    | 650.65  |   |
| E1    | Gauge Only             | MW186              | GW7/6          | 14/03/2023 | 302539.81  | 5806634.15  | 10.733                                | 7.35                                      | 4.069                         | 6.664                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW188              | GW7/8          | 14/03/2023 | 302550.341 | 5806564.5   | 11.223                                | 6.74                                      | 4.599                         | 6.624                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW190              | GW81/1         | 14/03/2023 | 302323.49  | 5806422.04  | 11.21                                 | 9.945                                     | 4.527                         | 6.683                              | -                     | -                               | Well buried under rock and grass                                       | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge and Sample       | MW192              | GW81/3         | 14/03/2023 | 302333.74  | 5806445.4   | 11.559                                | 8.801                                     | 4.9                           | 6.659                              | Low                   | 8.301                           | Clear water colour, 3% turbidity                                       | 20.7      | 1.65      | 4092       | 8.02 | 72.6    | 2659.8  |   |
| E1    | Gauge Only             | MW194              | GW81/5         | 14/03/2023 | 302314.831 | 5806425.287 | 11.406                                | 7.29                                      | 4.542                         | 6.864                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW196              | GW81/7         | 14/03/2023 | 302353.52  | 5806429.82  | 12.504                                | 20.62                                     | 5.883                         | 6.621                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW197              | GW88A/1        | 14/03/2023 | 302235.18  | 5806416.92  | 11.28                                 | 13.77                                     | 4.2                           | 7.08                               | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge and Sample       | MW200              | GW90/2         | 14/03/2023 | 302606.689 | 5806611.544 | 10.733                                | 7.024                                     | 4.087                         | 6.646                              | Low                   | 6.524                           | Cloudy water colour, 10% turbidity                                     | 20.8      | 1.72      | 4555       | 7.48 | 103.9   | 2960.75 |   |
| E1    | Gauge Only             | MW201              | GW90/3         | 14/03/2023 | 302638.494 | 5806549.1   | 11.338                                | 6.675                                     | 4.84                          | 6.498                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW203              | GWA/1          | 14/03/2023 | 302521.58  | 5807834.65  | 20.47                                 | 28.78                                     | 7.68                          | 12.79                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW206              | GWAM/3         | 14/03/2023 | 302762.491 | 5806902.884 | 12.542                                | 9   | 5.161                         | 7.381                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge and Sample       | MW207              | GWAM/4         | 14/03/2023 | 302791.079 | 5806828.498 | 11.681                                | 7.576                                     | 4.653                         | 7.028                              | Low                   | 7.076                           | Clear water colour, 5% turbidity                                       | 24        | 2.42      | 1947       | 7.27 | 79.2    | 1265.55 |   |
| E1    | Gauge and Sample       | MW208              | GWAM/5         | 14/03/2023 | 302802.254 | 5806982.549 | 12.91                                 | 9.354                                     | 5.539                         | 7.371                              | Low                   | 8.854                           | No Gatic lid, clear water, 3% turbidity                                | 21.4      | 3.3       | 3826       | 8.34 | 105.9   | 2486.9  |   |
| E1    | Gauge Only             | MW209              | GWAM/6         | 14/03/2023 | 302854.587 | 5806823.054 | 12.683                                | 8.644                                     | 6.342                         | 6.341                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge and Sample       | MW211              | GW8/2          | 14/03/2023 | 302667.386 | 5807389.359 | 14.37                                 | 14.33                                     | 4.256                         | 10.114                             | Low                   | 13.83                           | Clear water colour   | 23        | 3.53      | 10312      | 7.42 | 87.7    | 6702.8  |   |
| E1    | Gauge Only             | MW212              | GWK/1          | 14/03/2023 | 302982.97  | 5807571.64  | 12.29                                 | 5.81                                      | 2.919                         | 9.371                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW213              | GW8/1          | 14/03/2023 | 302763.13  | 5807546.98  | 13.92                                 | 15.8                                      | 3.731                         | 10.189                             | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW214              | GW8/1          | 14/03/2023 | 302712.22  | 5807692.79  | 18.06                                 | 26.01                                     | 6.246                         | 11.814                             | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW215              | GWG/1          | 20/03/2023 | 303243.36  | 5807736.72  | 10.54                                 | 8.782                                     | 1.394                         | 9.146                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge and Sample       | MW217              | GWGA01         | 14/03/2023 | 302703.17  | 5807616.61  | 17.236                                | 11.79                                     | 5.923                         | 11.313                             | Low                   | 11.29                           | Clear water colour, 5% turbidity                                       | 16.5      | 4.06      | 5088       | 7.41 | 152.1   | 3307.2  |   |
| E1    | Gauge Only             | MW218              | GWH/1          | 15/03/2023 | 303437.8   | 5807888.13  | 10.55                                 | 8.18                                      | 1.566                         | 8.984                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW222              | GWK/1          | 15/03/2023 | 303668.03  | 5808239.88  | 12.55                                 | 8.37                                      | 4.115                         | 8.435                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge Only             | MW225              | GW579/1        | 14/03/2023 | 302719.2   | 5806623.43  | 10.58                                 | 13.47                                     | 4.401                         | 6.179                              | -                     | -                               | -  | -         | -         | -          | -    | -       | -       | - |
| E1    | Gauge and Sample       | MW228              | -              | 15/03/2023 | 303335.69  | 5806188.31  | 5.71                                  | 4.12                                      | 2.104                         | 3.606                              | Low                   | 3.62                            | No well cap and top weight attached. Clear water colour, 7% turbidity. | 18.4      | 2.1       | 4015       | 7.31 | 93.6    | 2609.75 |   |
| E1    | Gauge and Sample       | MW229              | -              | 15/03/2023 | 303554.24  | 5806529.27  | 7.66                                  | 9.71                                      | 3.739                         | 3.921                              | Low                   | 9.21                            | Clear water colour, 5% turbidity                                       | 18.1      | 2.13      | 7988       | 7.19 | 85.3    | 5192.2  |   |
| E1    | Gauge Only             | MW230              | -              | 15/03/2023 | 303871.55  | 5806570.81  | 8.4                                   | -   | -                             | -                                  | -                     | -                               | Could not locate well  | -         | -         | -          | -    | -       | -       | - |

| Event | Location ID | Easting   | Northing  | Date       | Sample Depth (m) | Water Body Depth (m) | Flow (m/s) | Dissolved Oxygen (DO-mg/L) | Electrical Conductivity (EC-µS/Cm) | pH    | Redox Potential (Eh-m/V) | Temperature (°C) | TDS      |
|-------|-------------|-----------|-----------|------------|------------------|----------------------|------------|----------------------------|------------------------------------|-------|--------------------------|------------------|----------|
| E1    | SW005       | 303563    | 5807650   | 20/03/2023 | -                | -                    | -          | -                          | -                                  | -     | -                        | -                | -        |
| E1    | SW006       | 303594    | 5808237   | 20/03/2023 | 0.1              | 0.3                  | Low        | 6.93                       | 7340                               | 7.81  | 102.8                    | 17.9             | 4771     |
| E1    | SW008       | 302320    | 5807920   | 20/03/2023 | -                | -                    | -          | -                          | -                                  | -     | -                        | -                | -        |
| E1    | SW012       | 303443    | 5805592   | 21/03/2023 | 0.2              | 1                    | Low        | 6.94                       | 8060                               | 8.46  | 42.6                     | 18.9             | 5239     |
| E1    | SW013       | 303155    | 5805844   | 21/03/2023 | 0.1              | 0.2                  | Stagnant   | 5.86                       | 9114                               | 8.255 | 31.2                     | 19.8             | 5924.1   |
| E1    | SW015       | 303861    | 5807563   | 20/03/2023 | 0.2              | 0.3                  | Medium     | 6.15                       | 8080                               | 7.88  | 129.1                    | 20.5             | 5252     |
| E1    | SW020       | 302904    | 5805750   | 21/03/2023 | 0.3              | 0.5                  | Low        | 7.27                       | 8565                               | 8.24  | 12.3                     | 17.9             | 5567.25  |
| E1    | SW024       | 303647    | 5804612   | 21/03/2023 | 0.1              | 0.3                  | Low        | 7.6                        | 8171                               | 8.52  | 76.2                     | 18.4             | 5311.15  |
| E1    | SW027       | 301132    | 5806803   | 20/03/2023 | 0.2              | 0.3                  | Low        | 1.43                       | 189.6                              | 4.4   | 122.3                    | 19.8             | 123.24   |
| E1    | SW030       | 301166    | 5806698   | 20/03/2023 | 0.2              | 0.5                  | Low        | 5.71                       | 1119                               | 7.45  | 131.7                    | 21.3             | 727.35   |
| E1    | SW034       | 302803    | 5806795   | 20/03/2023 | 0                | 0.05                 | Low        | 6.88                       | 1722                               | 8.64  | 65.9                     | 16               | 1119.3   |
| E1    | SW041       | 300674    | 5805437   | 21/03/2023 | 0.1              | 1                    | Low        | 10.13                      | 10732                              | 8.72  | 77.3                     | 18.9             | 6975.8   |
| E1    | SW042       | 301588    | 5805948   | 20/03/2023 | -                | -                    | -          | -                          | -                                  | -     | -                        | -                | -        |
| E1    | SW043       | 302259    | 5806401   | 20/03/2023 | -                | -                    | -          | -                          | -                                  | -     | -                        | -                | -        |
| E1    | SW045       | 300494    | 5807011   | 20/03/2023 | 0.05             | 0.1                  | Low        | 4.74                       | 248.2                              | 7.32  | 133.9                    | 16.1             | 161.33   |
| E1    | SW049       | 304293.15 | 5804432.1 | 21/03/2023 | 0.1              | 1                    | Low        | 7.06                       | 8355                               | 8.52  | 55.3                     | 17.9             | 5430.75  |
| E1    | SW052       | 302743    | 5803091   | 21/03/2023 | 0.1              | 2                    | Low        | 5.59                       | 17664                              | 8.66  | 61.9                     | 18.4             | 11481.6  |
| E1    | SW073       | 302547    | 5805707   | 21/03/2023 | 0.01             | 0.05                 | Low        | 0.49                       | 14940                              | 7.57  | -128.7                   | 15.5             | 9711     |
| E1    | SW078       | 304786    | 5803490   | 21/03/2023 | 0.1              | 0.5                  | Low        | 6.97                       | 8654                               | 8.73  | 68.1                     | 18               | 5625.1   |
| E1    | SW085       | 303521    | 5802808   | 21/03/2023 | 0.1              | 2                    | Stagnant   | 4.53                       | 21094                              | 8.48  | 68.7                     | 18.8             | 13711.1  |
| E1    | SW086       | 303904    | 5803116   | 21/03/2023 | 0.5              | 0.1                  | Low        | 5.44                       | 21609                              | 8.55  | 56.9                     | 18.8             | 14045.85 |
| E1    | SW087       | 304290    | 5803068   | 21/03/2023 | 0.1              | 2                    | Stagnant   | 8.15                       | 23391                              | 9.01  | 67.8                     | 19.8             | 15204.15 |
| E1    | SW088       | 304727    | 5802685   | 21/03/2023 | 0.02             | 1                    | Low        | 6.55                       | 23609                              | 8.72  | 76.7                     | 18.6             | 15345.85 |

| Event | Location ID | Easting   | Northing  | Date       | Observations   |
|-------|-------------|-----------|-----------|------------|--|
| E1    | SW005       | 303563    | 5807650   | 20/03/2023 | Dry  |
| E1    | SW006       | 303594    | 5808237   | 20/03/2023 | Clear water, low turbidity, water flowing from road direction. |
| E1    | SW008       | 302320    | 5807920   | 20/03/2023 | Dry  |
| E1    | SW012       | 303443    | 5805592   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW013       | 303155    | 5805844   | 21/03/2023 | Cloudy water, low turbidity, acid sulfate smell                |
| E1    | SW015       | 303861    | 5807563   | 20/03/2023 | Clear water, low turbidity                                     |
| E1    | SW020       | 302904    | 5805750   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW024       | 303647    | 5804612   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW027       | 301132    | 5806803   | 20/03/2023 | Cloudy water, low turbidity                                    |
| E1    | SW030       | 301166    | 5806698   | 20/03/2023 | Clear water, low turbidity                                     |
| E1    | SW034       | 302803    | 5806795   | 20/03/2023 | Cloudy yellow brown water, Low turbidity,                      |
| E1    | SW041       | 300674    | 5805437   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW042       | 301588    | 5805948   | 20/03/2023 | Dry  |
| E1    | SW043       | 302259    | 5806401   | 20/03/2023 | Dry  |
| E1    | SW045       | 300494    | 5807011   | 20/03/2023 | Clear water, low turbidity                                     |
| E1    | SW049       | 304293.15 | 5804432.1 | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW052       | 302743    | 5803091   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW073       | 302547    | 5805707   | 21/03/2023 | Black water colour, medium turbidity                           |
| E1    | SW078       | 304786    | 5803490   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW085       | 303521    | 5802808   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW086       | 303904    | 5803116   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW087       | 304290    | 5803068   | 21/03/2023 | Clear water, low turbidity                                     |
| E1    | SW088       | 304727    | 5802685   | 21/03/2023 | Clear water, low turbidity                                     |

## F3.01 – Quality Control Sample Register

### Project Details

|                                      |                      |
|--------------------------------------|----------------------|
| Project Name: RAAF Williams Laverton | Job Number: DEF19008 |
| Site Address: RAAF Williams Laverton | PP/PM: [REDACTED]    |
| Client Company/Contact: Defence      | Date: [REDACTED]     |
| Persons Present: [REDACTED]          | Notes By: [REDACTED] |

### Quality Control Requirements

#### Standard QC Sample Requirements (see Proposal for project specific details)




|                                   |   |
|-----------------------------------|---|
| Rinsate Blank:                    | 1/day (even if only placed on hold)                             |
| DI Water Blank:                   | 1/day (even if only placed on hold)                             |
| Trip Blank:                       | 1/day or 1/esky (if volatiles are suspected or present at site) |
| Blind Replicate (Primary List):   | 1 in 20 primary samples   |
| Split Replicate (Secondary List): | 1 in 20 primary samples   |

#### Labelling

Samples to be labelled **QC##\_date** where “##” is a numerical sequence commencing at 01 for each field event and **date** is the date of sampling in ddmmyyyy format (e.g. QC01\_03112010)

### Quality Control Sample Register

| QC Sample<br>e.g. QC01_03112010 | Primary Sample | Description | DI Water Batch Number |
|---------------------------------|----------------|-------------|-----------------------|
| QC100_20230316                  | MW300          |             |                       |
| QC200_20230316                  | MW200          |             |                       |
| QC101_20230316                  | MW102          |             |                       |
| QC201_20230316                  | MW102          |             |                       |
| QC102_20230316                  | MW208          |             |                       |
| QC202_20230316                  | MW208          |             |                       |
| QC103_20230316                  | MW211          |             |                       |
| QC203_20230316                  | MW211          |             |                       |
| QC104_20230317                  | SW006          |             |                       |
| QC204_20230317                  | SW006          |             |                       |
| QC105_20230322                  | SW020          |             |                       |
| QC205_20230322                  | SW020          |             |                       |
| QC106_20230322                  | SW088          |             |                       |
| QC206_20230322                  | SW088          |             |                       |

| Date of Bump Test | Job Number | Unit Brand/ Model  | Ambient Air Oxygen Calibration  | Zero % Oxygen Solution Calibration  | Standard Concentrations (Y if all are present)  | Ambient Temperature (°C) | Bump Test Reading   | Bump Test Readings within ±5%?   | Comment | Test by (Name) | (Signature)   |
|-------------------|------------|--|---|---|---|--------------------------|---|--|---------|----------------|---|
| 16/3              | DEF 19008  | 22D104357<br>YSI Pro Plus<br>(Cardno YSI serial number: 19H102165) | 100% Saturation? <input checked="" type="radio"/> Y <input type="radio"/> N | 0% Calibration <input checked="" type="radio"/> Y <input type="radio"/> N | pH 4.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: 11.67 µS/cm @ 20 °C <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: 240 mV @ 20 °C <input checked="" type="radio"/> Y <input type="radio"/> N | 20.1                     | pH 4.00: 3.96<br>pH 7.00: 7.07<br>pH 10.00: 9.88<br>EC: 11.67 µS/cm @ 20 °C<br>ORP: 242 mV @ 20 °C            | pH 4.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input checked="" type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input checked="" type="radio"/> Y <input type="radio"/> N |         |                |  |
| 17/3              | "          | "  | 100% Saturation? <input checked="" type="radio"/> Y <input type="radio"/> N | 0% Calibration <input checked="" type="radio"/> Y <input type="radio"/> N | pH 4.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: 11.43 µS/cm @ 19 °C <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: 240 mV @ 20 °C <input checked="" type="radio"/> Y <input type="radio"/> N | 19.1                     | pH 4.00: 3.98<br>pH 7.00: 7.04<br>pH 10.00: 9.96<br>EC: 11.46 µS/cm @ 19 °C<br>ORP: 244 mV @ 19 °C            | pH 4.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input checked="" type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input checked="" type="radio"/> Y <input type="radio"/> N |         |                |  |
| 20/3              | "          | "  | 100% Saturation? <input checked="" type="radio"/> Y <input type="radio"/> N | 0% Calibration <input checked="" type="radio"/> Y <input type="radio"/> N | pH 4.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: 10.72 µS/cm @ 16 °C <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: 251 mV @ 15 °C <input checked="" type="radio"/> Y <input type="radio"/> N | 15.6                     | pH 4.00: 4.01<br>pH 7.00: 7.09<br>pH 10.00: 10.02<br>EC: 10.67 µS/cm @ 16 °C<br>ORP: 250 mV @ 16 °C           | pH 4.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input checked="" type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input checked="" type="radio"/> Y <input type="radio"/> N |         |                |  |
| 21/3              | "          | "  | 100% Saturation? <input checked="" type="radio"/> Y <input type="radio"/> N | 0% Calibration <input checked="" type="radio"/> Y <input type="radio"/> N | pH 4.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: 10.48 µS/cm @ 15 °C <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: 251 mV @ 15 °C <input checked="" type="radio"/> Y <input type="radio"/> N | 14.5                     | pH 4.00: 3.96<br>pH 7.00: 7.05<br>pH 10.00: 10.02<br>EC: 10.6 µS/cm @ 15 °C<br>ORP: 252 mV @ 15 °C            | pH 4.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input checked="" type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input checked="" type="radio"/> Y <input type="radio"/> N |         |                |  |
| 22/3              | "          | "  | 100% Saturation? <input checked="" type="radio"/> Y <input type="radio"/> N | 0% Calibration <input checked="" type="radio"/> Y <input type="radio"/> N | pH 4.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: 10.95 µS/cm @ 17 °C <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: 251 mV @ 15 °C <input checked="" type="radio"/> Y <input type="radio"/> N | 17.3                     | pH 4.00: 4.01<br>pH 7.00: 7.03<br>pH 10.00: 10.05<br>EC: 11.02 µS/cm @ 17 °C<br>ORP: 247 mV @ 17 °C           | pH 4.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input checked="" type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input checked="" type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input checked="" type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input checked="" type="radio"/> Y <input type="radio"/> N |         |                |  |
|                   |            |  | 100% Saturation? <input type="radio"/> Y <input type="radio"/> N            | 0% Calibration <input type="radio"/> Y <input type="radio"/> N            | pH 4.00 <input type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input type="radio"/> Y <input type="radio"/> N<br>EC: _____ µS/cm @ _____ °C <input type="radio"/> Y <input type="radio"/> N<br>ORP: _____ mV @ _____ °C <input type="radio"/> Y <input type="radio"/> N  |                          | pH 4.00: _____<br>pH 7.00: _____<br>pH 10.00: _____<br>EC: _____ µS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | pH 4.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input type="radio"/> Y <input type="radio"/> N   |         |                |   |
|                   |            |  | 100% Saturation? <input type="radio"/> Y <input type="radio"/> N            | 0% Calibration <input type="radio"/> Y <input type="radio"/> N            | pH 4.00 <input type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input type="radio"/> Y <input type="radio"/> N<br>EC: _____ µS/cm @ _____ °C <input type="radio"/> Y <input type="radio"/> N<br>ORP: _____ mV @ _____ °C <input type="radio"/> Y <input type="radio"/> N  |                          | pH 4.00: _____<br>pH 7.00: _____<br>pH 10.00: _____<br>EC: _____ µS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | pH 4.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input type="radio"/> Y <input type="radio"/> N   |         |                |   |
|                   |            |  | 100% Saturation? <input type="radio"/> Y <input type="radio"/> N            | 0% Calibration <input type="radio"/> Y <input type="radio"/> N            | pH 4.00 <input type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input type="radio"/> Y <input type="radio"/> N<br>EC: _____ µS/cm @ _____ °C <input type="radio"/> Y <input type="radio"/> N<br>ORP: _____ mV @ _____ °C <input type="radio"/> Y <input type="radio"/> N  |                          | pH 4.00: _____<br>pH 7.00: _____<br>pH 10.00: _____<br>EC: _____ µS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | pH 4.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input type="radio"/> Y <input type="radio"/> N   |         |                |   |
|                   |            |  | 100% Saturation? <input type="radio"/> Y <input type="radio"/> N            | 0% Calibration <input type="radio"/> Y <input type="radio"/> N            | pH 4.00 <input type="radio"/> Y <input type="radio"/> N<br>pH 7.00 <input type="radio"/> Y <input type="radio"/> N<br>pH 10.00 <input type="radio"/> Y <input type="radio"/> N<br>EC: _____ µS/cm @ _____ °C <input type="radio"/> Y <input type="radio"/> N<br>ORP: _____ mV @ _____ °C <input type="radio"/> Y <input type="radio"/> N  |                          | pH 4.00: _____<br>pH 7.00: _____<br>pH 10.00: _____<br>EC: _____ µS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | pH 4.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>pH 7.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>pH 10.00: (± pH 0.2) <input type="radio"/> Y <input type="radio"/> N<br>EC: (± 150µS/cm) <input type="radio"/> Y <input type="radio"/> N<br>ORP: (± 10mV) <input type="radio"/> Y <input type="radio"/> N<br>Temp: (± 2°C) <input type="radio"/> Y <input type="radio"/> N   |         |                |   |



# Equipment Calibration Form

## YSI ProPlus



**Enqip #:** 18969  
**Company:** Stantec Australia Pty Ltd  
**Consultant:** [REDACTED]  
**PO #:** DEF19008  
**Certificate #:** 27911

### INSTRUMENT IDENTIFICATION

**Model Number:** 6050000  
**Serial Number:** 19K102539  
**Instrument Type:** YSI ProPlus

### INSPECTION RECORD

**Batteries Checked:** PASS      **Date & Time:** PASS  
**Electrodes Cleaned/Checked:** PASS      **Temperature:** PASS

### CALIBRATION DETAILS

| Sensor         | Cal Solution          | Value              | Reading    |
|----------------|-----------------------|--------------------|------------|
| pH             | Buffer 4.00           | 4.00 pH            | 4.00 pH    |
|                | Buffer 7.00           | 7.00 pH            | 7.00 pH    |
| Redox          | Standard ORP          | 234.5 mV @ 20.0 °C | 234.5 mV   |
| O <sub>2</sub> | Zero Dissolved Oxygen | 0.0 %              | 0.0 %      |
|                | Air                   | 100.0 %            | 100.0 %    |
| Conductivity   | Standard Conductivity | 2.76 mS/cm         | 2.76 mS/cm |

**Calibration Successful:** YES

**Calibrated By:** [REDACTED]

**Test Date:** 10/03/2023



116 Thistlethwaite St, South Melbourne 3205  
P 1300 218 987

E info@enqip.com.au | W www.enqip.com.au

# Instrument Quality Report Interface Meter



**Enqip #:** 18969  
**Company:** Stantec Australia Pty Ltd  
**Consultant:** [REDACTED]  
**PO #:** DEF19008  
**Certificate #:** 27912

## INSTRUMENT IDENTIFICATION

**Instrument Type:** Solinst Interface Meter  
**Model Number:** 122  
**Serial Number:** IM-1603

## INSPECTION RECORD

|                        |      |                          |      |
|------------------------|------|--------------------------|------|
| <b>Battery:</b>        | PASS | <b>Water Tone:</b>       | PASS |
| <b>Tape Condition:</b> | PASS | <b>Hydrocarbon Tone:</b> | PASS |

**Tested By:** [REDACTED]

**Test Date:** 10/03/2023



116 Thistlethwaite St, South Melbourne 3205  
P 1300 218 987

E info@enqip.com.au | W www.enqip.com.au

## F3.01 Equipment Calibration Report

### YSI ProPlus Water Quality Meter

This YSI ProPlus Water Quality Meter has been performance checked as per the manufacturer's guidelines<sup>1</sup>.

**Unit Type:** YSI ProPlus  
**Serial Number:** 19H102165

The unit has been checked for and comprises of the following items:

| Item                  | Present                             | Damaged or Absent?       |
|-----------------------|-------------------------------------|--------------------------|
| Carry case            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Attached sensors (x4) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Spare Batteries       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Connector Cable       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Instruction Manual    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

The following tests and operational checks have been conducted on the unit:

| Item                                    | Test Completed                      | Test Passed                         |
|---|-------------------------------------|-------------------------------------|
| WQM unit electrodes cleaned and checked | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Operations check (screen functions)     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature check                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Calibration:

| Sensor         | Cal. Solution                           | Value                             | Reading                        |
|----------------|---|-----------------------------------|--------------------------------|
| pH             | pH: Buffer Solution 4.00                | 4.00                              | 3.96                           |
| pH             | pH: Buffer Solution 7.00                | 7.00                              | 6.98                           |
| pH             | pH: Buffer Solution 10.00               | 10.00                             | 9.97                           |
| Redox          | Standard ORP solution                   | <u>240</u> mV @ <u>20</u> °C      | <u>243</u> mV @ <u>20</u> °C   |
| O <sub>2</sub> | Ambient Air for 100% Dissolved Oxygen   | 100%                              | ✓                              |
| O <sub>2</sub> | Sodium Sulphite for 0% Dissolved Oxygen | 0%                                | ✓                              |
| Conductivity   | Standard Conductivity Solution          | <u>11670</u> µS/cm @ <u>20</u> °C | <u>11654</u> mV @ <u>20</u> °C |

Checked/ Calibrated by: [REDACTED]

Signed: 

Date: 16/3/23

<sup>1</sup> YSI Professional Plus – Calibration Tips; Rev A, December 2010.

## F3.01 Equipment Calibration Report

### YSI ProPlus Water Quality Meter

This YSI ProPlus Water Quality Meter has been performance checked as per the manufacturer's guidelines<sup>1</sup>.

**Unit Type:** YSI ProPlus  
**Serial Number:** 19H102165

The unit has been checked for and comprises of the following items:

| Item                  | Present                             | Damaged or Absent?       |
|-----------------------|-------------------------------------|--------------------------|
| Carry case            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Attached sensors (x4) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Spare Batteries       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Connector Cable       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Instruction Manual    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

The following tests and operational checks have been conducted on the unit:

| Item                                    | Test Completed                      | Test Passed                         |
|---|-------------------------------------|-------------------------------------|
| WQM unit electrodes cleaned and checked | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Operations check (screen functions)     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature check                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Calibration:

| Sensor         | Cal. Solution                           | Value                         | Reading          |
|----------------|---|-------------------------------|------------------|
| pH             | pH: Buffer Solution 4.00                | 4.00                          | 3.88             |
| pH             | pH: Buffer Solution 7.00                | 7.00                          | 7.02             |
| pH             | pH: Buffer Solution 10.00               | 10.00                         | 10.07            |
| Redox          | Standard ORP solution                   | 251 <del>250</del> mV @ 15 °c | 256 mV @ 16 °c   |
| O <sub>2</sub> | Ambient Air for 100% Dissolved Oxygen   | 100%                          |                  |
| O <sub>2</sub> | Sodium Sulphite for 0% Dissolved Oxygen | 0%                            |                  |
| Conductivity   | Standard Conductivity Solution          | 10720 µS/cm @ 16 °c           | 10800 mV @ 16 °c |

Checked/ Calibrated by:



Signed:



Date:

20/3/23

<sup>1</sup> YSI Professional Plus – Calibration Tips; Rev A, December 2010.

APPENDIX

E

DATA QUALITY REVIEW

## Data Quality Review RAAF Williams (Laverton)

This Appendix reviews the Quality Assurance (QA) and Quality Control (QC) documentation. Quality assurance encompasses the actions, procedures, checks and decisions undertaken to ensure sample integrity and representativeness, and the reliability and accuracy of analysis results. The QA documentation should also include an indication of the Data Quality Objectives sought in relation to each significant action, test or process involved in the Assessment.

QC activities measure the effectiveness of the QA procedures by undertaking testing, and then comparing results to previously established objectives. QC work will include the internal laboratory testing as well as results of QC samples submitted such as trip blanks and duplicates. The quality of the information and/or data is deemed satisfactory when the QC results demonstrate that agreed objectives have been met.

Cardno undertook a review of its QA/QC as part of the data validation exercise. The findings are summarised below.

| QA/QC Aspects  | Evidence and Evaluation  |
|--|--|
| <b>QA Documentation</b>  |  |
| Sampling and Analysis Quality Plan and Data Quality Objectives | <p>Cardno now Stantec was engaged by Department of Defence (the client) to carry out the PFAS Ongoing Monitoring Plan (OMP) at RAAF Williams (Laverton) (the site).</p> <p>The monitoring event was completed from 14 March 2023 until 22 March 2023 and is in general accordance with the scope and limitations presented in Cardno's Sampling and Analysis Quality Plan (SAQP) of 11 May 2023 (Our Ref: 20230210_OMP002_SAQP_Rev2).</p> <p>The assessment was carried out in general compliance with the following:</p> <ul style="list-style-type: none"> <li>▪ Australian Standard (2005), AS 4482-2005 Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 - Non-volatile and semi-volatile compounds (withdrawn as pending revision, referred to for 'state of knowledge').</li> <li>▪ Department of Defence (2021), Contamination Management Manual (DCMM), Annex L – Data Management, August 2019, Amended June 2021.</li> <li>▪ Department of Defence (2019), Pollution Prevention Management Manual – Annex 1L: Pollution Prevention Guidance - Routine Water Quality Monitoring.</li> <li>▪ Department of Defence, Department of Energy (2018), Quality System Manual Schedule B15 USEPA DQO Process.</li> <li>▪ EPA Victoria (2009), Industrial Waste Resources Guidelines, Sampling and Analysis of Waters, Wastewaters, Soils and Wastes, Publication 701.</li> <li>▪ Heads of Environmental Protection Authority's Australia and New Zealand (HEPA; 2020), PFAS National Environmental Management Plan (NEMP) Version 2.0, January 2020.</li> <li>▪ National Environment Protection Council (NEPC; 2013), National Environmental Protection (Assessment of Site Contamination) Measure (as amended 2013) (ASC NEPM).</li> <li>▪ National Health and Medical Research Council (NHMRC; 2019), Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water, August 2019.</li> <li>▪ USEPA (2006), Guidance for the Data Quality Objectives Process (EPA QA/G-4).</li> </ul> <p>A quality control program was implemented during the investigation and the quality assurance procedures used have been reiterated in the report.</p> <p>The investigation was carried out in accordance with the Safe Work method Statements (SWMS) and Health, Safety and Environmental Management Plan</p> |

| QA/QC Aspects                               | Evidence and Evaluation  |
|---|--|
|   | <p>(HSEMP) for the site. Detailed work plans were also provided for each phase of investigation and are outlined in the SAQP.</p> <p>The Data Quality Objectives were expressed in terms of the purpose of the assessment and the relevant assessment criteria.</p>  |
| Data Validation Report                      | <p>This review constitutes a data validation review. This was supported by an ESdat generated "QAQC Checker" excel report, summarised in Table B3, Appendix B.</p>   |
| <b>Data Representativeness</b>              |  |
| Holding Times                               | <p>Groundwater and surface water sample analysis holding times were in conformance with EPA Publication IWRG701 2009 'Sampling and Analysis of Waters, Wastewaters, Soils and Wastes'.</p>   |
| Background Samples                          | <p>No background samples were collected as part of this assessment.</p>  |
| Equipment Decontamination                   | <p>The decontamination methodology conducted during this investigation is documented in the body of the report, and was in general conformance with the SAQP.</p> <p>Reusable equipment (e.g. interface meter, water quality meter, telescopic pole) was rinsed with Liquinox® and deionised water after use between each location.</p>  |
| Laboratory Re-analysis                      | <p>Laboratory re-analysis was requested to confirm first-time detections, new exceedances and/or order of magnitude increases at the following locations: MW115, MW123, MW131, MW163, MW208 and SW034. All reanalysis results were found to be consistent with the original results.</p>   |
| <b>Data Precision and Accuracy</b>          |  |
| QC Testing – Blind Replicates (Primary Lab) | <p style="text-align: center;"><b>Groundwater</b></p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30%</li> <li>▪ Groundwater Samples Analysed: 35</li> <li>▪ Blind Replicate Samples Analysed: 4</li> <li>▪ Blind Replicate Analyte Pairs: 112 (excludes 'analytes' that are a summation of other analytes)</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 1</li> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 0.89%</li> </ul> <p>The RPD exceedances observed were generally minor and likely attributed to the low concentration of analyte pairs. This is not considered to impact the results of the investigation. The RPD results are presented in Table B3, Appendix B.</p> <p style="text-align: center;"><b>Surface water</b></p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30 %</li> <li>▪ Surface water Samples Analysed: 19</li> <li>▪ Blind Replicate Samples Analysed: 3</li> <li>▪ Blind Replicate Analyte Pairs: 84 (excludes 'analytes' that are a summation of other analytes)</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 0</li> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 0%</li> </ul> <p>No RPD exceedances were reported. The RPD results are presented in Table B3, Appendix B.</p> |
| QC Testing – Field Splits (Secondary Lab)   | <p style="text-align: center;"><b>Groundwater</b></p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30%</li> <li>▪ Groundwater Samples Analysed: 35</li> <li>▪ Blind Replicate Samples Analysed: 4</li> <li>▪ Blind Replicate Analyte Pairs: 112 (excludes 'analytes' that are a summation of other analytes)</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 13</li> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 11.6%</li> </ul>   |

| QA/QC Aspects                          | Evidence and Evaluation   |
|--|---|
|  | <p>The RPD exceedances observed were generally minor and likely attributed to the low concentration of analyte pairs and difference in method extraction between the laboratories. This is not considered to impact the results of the investigation. RPD results are presented in Table B3, Appendix B.</p> <p style="text-align: center;"><b>Surface water</b></p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30 %</li> <li>▪ Surface water Samples Analysed: 19</li> <li>▪ Blind Replicate Samples Analysed: 3</li> <li>▪ Blind Replicate Analyte Pairs: 84 (excludes ‘analytes’ that are a summation of other analytes)</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 12</li> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 14.28%</li> </ul> <p>The RPD exceedances observed were generally minor and likely attributed to the low concentration of analyte pairs and difference in method extraction between the laboratories. This is not considered to impact the results of the investigation. RPD results are presented in Table B3, Appendix B.</p> |
| Trip Blanks                            | Four trip blanks were collected, and laboratory tested for PFAS. All analytes were reported below the limit of reporting (LOR). Trip blank results are presented in Table B4, Appendix B.   |
| Laboratory Internal QC                 | <p>Evidence of the laboratories internal QC testing is present and complete. Both ALS (the primary laboratory) and Eurofins-mgt performed internal QC with adequate testing and mostly satisfactory results for matrix spikes, method blanks and laboratory duplicates. Exceptions include following laboratory reports EM2304822, EM2305194, EM2305196 and EM2304823</p> <ul style="list-style-type: none"> <li>▪ EM2304822-003, EM2304822-009, EM2304822-016, EM2305186-002, EM2305193-002 did not determine a matrix spike recovery as the recovery was less than the lower data quality objective for select PFAS compounds.</li> <li>▪ EM2305193-002, EM2304822-003, EM2304822-009, did not determine matrix spike recovery as background level greater than or equal to 4x spike level.</li> <li>▪ EM2305194 and EM2304823, quality control sample frequency: less than the specification outlined in NEPM 2013 B3 and ALS QC Standard.</li> </ul> <p>These exceptions are not considered to impact the results of the investigation.</p>   |
| Laboratory Method Detection Limit      | Laboratory reports indicate the method detection limits were generally lower than the respective assessment criteria.   |
| NATA endorsement of laboratory reports | Laboratory reports were stamped with the NATA endorsement stamp and signature. Laboratory reports are included in Appendix C of this report.  |
| Calibration of Field Equipment         | <p>All field equipment used was calibrated by the equipment supplier. Certificates are included in Appendix D of this report.</p> <p>Additionally, bump tests were performed of the water quality meter throughout the monitoring event.</p>  |
| Decontamination and Equipment Blanks   | <p>Eight rinsate blanks were collected during the investigation.</p> <p>Rinsate blank samples were tested for PFAS which all reported a concentration below the laboratory LOR. Results are shown in Table B4, Appendix B.</p>  |
| <b>Data Comparability</b>              |   |
| Full Review of Data                    | <p>Once all results have been received, Cardno undertake a full review of the data for any anomalies in consideration of historical data at each location (where available), such as first-time detections or new exceedances being reported at locations which have not had detections or exceedances previously. Where potentially anomalous data is identified or suspected, further confirmatory measures were undertaken such as re-extraction and reanalysis of the sample by the laboratory and/or additional data quality review.</p> <p>A total of 6 samples were requested for re-extraction and reanalysis as listed above.</p>  |



| QA/QC Aspects                | Evidence and Evaluation  |
|------------------------------|--|
|                              | The instrument runs were reviewed by the laboratory and the results reconfirmed by reanalysis from a second sample bottle. The original results for all samples were confirmed.  |
| Standard Procedures          | Fieldwork procedures are detailed in the report and followed the work methods outlined in the SAQP.  |
| Qualified Personnel          | Staff involved in managing and reviewing the project and those involved in fieldwork are qualified personnel.  |
| Volatile Losses              | Volatile losses are not applicable to PFAS.  |
| Sample Integrity             | Field Chain of Custody forms are included in Appendix C of this report and demonstrate sample integrity.   |
| <b>Data Completeness</b>     |  |
| Completeness of Test Program | The scope of work undertaken was generally consistent with that set out in the SAQP. Variations to the SAQP are detailed in the Factual Report.  |
| Validity of Data Set         | The data quality review indicates no significant systematic errors in the data collection process for surface water and groundwater and therefore, the data set used as the basis for the assessment is considered valid and complete. |

APPENDIX

F

INFORMATION ABOUT ENVIRONMENTAL REPORTS

# About Site Environmental Assessment Reports

## 1. Introduction

This document explains the Environmental Site Assessment (ESA) process and the context that applies to the use of Environmental Reports issued by Cardno now Stantec.

## 2. What is an ESA?

Environmental Site Assessments (ESA) are undertaken for a range of purposes, specific to the brief issued by the client in each case. The scope may include one or a combination of any of the following:

- A factual report of the condition of a portion of the site or one aspect of an entire site.
- Assessment of the contamination levels in soil to be removed from a site – a waste classification assessment.
- Validation of the success of remediation of a site or a portion of a site.
- Provision of a professional opinion about the suitability of a site for one or more uses, in terms of its contamination status.

The scope of any ESA needs to be defined at the outset.

An ESA is not an Environmental Audit. Such audits are undertaken in accordance with the provisions of regulations enacted in various states of Australia, and are referred to as Site Audits in some jurisdictions. Statutory audits provide certification by EPA accredited auditors that a site is suitable for one or more uses. An ESA may provide similar advice but cannot be used in place of an audit if the latter is required by regulation in any instance. However in some circumstances and jurisdictions an ESA is sufficient to provide “environmental sign-off” of a site.

An ESA may be undertaken for due diligence purposes, to establish whether the site has been impacted to the extent that some beneficial uses of the site may be precluded. Due diligence audits in many cases may be completed as non-statutory Audits, although in some jurisdictions they can also be statutory audits, if defined as such at the outset.

## 3. The ESA Process

The Client generally initiates the ESA process by specifying a brief which identifies the specific objectives of the assessment. If not, it is the consultants' duty to so specify the ESA

In the case of an ESA to provide an opinion about the suitability of the site for use, it would be conducted in accordance with NEPM (Site Assessment). Such ESA would not commence until a thorough site history assessment (Phase 1 Assessment: to identify the potential for significant contamination at a site) is conducted. However, where the history is unclear, a broad screening of chemical parameters can be used to test environmental media. This normally includes a broad range of organic and inorganic compounds and elements, often referred to as an Environmental Screen.

(In the case of an ESA for a purpose other than to provide an opinion about the suitability of the site for use, it is not always necessary to undertake a Phase 1 assessment.)

The ESA requires sampling of soil at representative locations across the site. A NATA accredited laboratory performs the analysis of soil. It is impractical for all of the soil to be assessed. The ESA is often based on a statistical method of grid or random sampling, augmented by targeted sampling at locations known or suspected to be contaminated. Guidance on sampling strategy and density is provided in Australian Standard AS4482.1–2005. However, some considerable degree of judgement is still required in the application of any sampling and testing strategy. For example the blanket application of the “hot spot” method presented in this standard is often inappropriate given its limitations.

The field program also investigates the likelihood of contamination below the site surface. Field investigations must sample and test fill as well as the natural soils. If contamination is found then it is common for further work to be undertaken to characterise, to the extent practical, its vertical and horizontal extent. However, where fill is encountered and testing shows it to be uncontaminated, it must be realised that the heterogeneous nature of the material might mean that not all pockets of contaminated material can be detected using normal sampling regimes.

EPA guidelines for auditors, that may be relevant for an ESA, indicate the need in all cases to consider the potential for groundwater contamination in any site. This does not mean all sites need to be drilled to sample groundwater, but it is most often the case. Most hydrogeological settings and groundwater conditions are complex and vary in space and time. The condition of groundwater is investigated to identify if any beneficial use or environmental value of groundwater is precluded due to contamination.

As previously stated for soil, all groundwater at the site cannot be tested. The environmental investigations are conducted in accordance with industry standards and guidelines (e.g. EPA Vic Pub 668). This provides a level of confidence that a sufficiently comprehensive assessment of the groundwater at the site is achieved.

Where an investigation shows that groundwater is polluted, consideration should be given to assessing the risks and the need for and practicality of any clean up.

#### 4. Environmental Assessment Report

The ESA Report details the findings of the ESA. It provides summary information on the site definition, the reasons for the assessment and other relevant facts. It reviews the scope and quality of the site investigations, laboratory testing and data analyses undertaken. These reports also present a review of the contamination status of the site, the need for any further clean up, and an opinion on the suitability of the site for a range of beneficial uses and land uses such as “residential – low density”, “commercial” etc, as appropriate.

However, as noted above, some ESA have a narrow scope such as for classification of waste soil for removal from site, and do not make conclusions on suitability of site for use.

The ESA Report generally includes copies of other documents and reports, necessary to support the assessment findings, presented as appendices. These can contain more detailed information than the body of the ESA Report. Care should be taken to also read the appended documents and the ESA report in full.

Cardno now Stantec generally issues reports in electronic form (e-Report) on CD ROM. ESA Reports are issued in this format as Adobe Acrobat™ PDF files. However, a paper copy of the executive summary of the ESA Report is generally issued to the client, and others as required by the brief or by regulation.

#### 5. Limitations of Environmental Assessment Report

The ESA Report is prepared in a manner that can be easily read by a lay person with a legitimate interest in the contamination status of the site, such as the site owner or occupier, EPA and Local Planning Authority. The ESA report is not intended for use by other parties or for other purposes. Anyone who uses the assessment report for purposes other than specified in the report, does so at their own risk.

The site should only be used for one or more of the beneficial uses and land uses identified in the ESA as suitable.

The conditions and qualifications may apply to the suitability of the site for use, and it is the responsibility of the Client to be cognizant of and accept these in accepting the report. Cardno now Stantec are only responsible for the issuing of the ESA report but accepts no liability for the costs incurred in the implementation of ESA findings.

The ESA provides a “snapshot” of the site conditions at the time of the site investigation. Consequently, the report may not be valid at a later time if there has been any change to the contamination status of the site in that time. Verification of the status of the site may be required in cases where a significant time has elapsed, or site conditions have changed since the assessment and audit.

The ESA is necessarily limited by constraints such as time, cost and available information; although normal professional practice at the time has been applied with all due care to prepare the report. A necessary requirement of this process is the horizontal and vertical interpolation of data from discrete locations. However, site conditions are generally not homogenous and some discrepancies will occur between the actual and predicted results at locations not directly sampled. There is a risk that contamination may occur at the site and not be identified by a competent investigation and assessment. The approach adopted in sampling (a combination of statistically based grid and judgmental sampling) seeks to reduce, but cannot eliminate, this risk.

Where unexpected occurrences of contamination arise, subsequent to the issue of the ESA Report, Cardno now Stantec should be permitted to make an interpretation of these facts in relation to the ESA Report findings. Consequently, the Client should inform Cardno now Stantec and seek their opinion. Cardno now Stantec accepts no liability for costs incurred due to such unexpected

occurrences, given the inherent uncertainties in the assessment process.

Cardno now Stantec uses information provided by other parties as the basis for the ESA, and reliance on this information is at the discretion of Cardno now Stantec. However, however Cardno now Stantec cannot guarantee any of the facts, findings or conclusions presented by other parties. Cardno now Stantec will not be liable for the use of information, provided by others that is subsequently found to be intentionally misleading.

The ESA Report is not and does not purport to be anything other than a contaminated land ESA. It is not a geotechnical report and bore logs reproduced are for interpretation of the likely distribution of contamination. They are not intended for geotechnical interpretations and may not be adequate for this purpose.

The ESA Report is not intended to be a comprehensive analysis of the presence and associated risk of asbestos in buildings and services. Where asbestos in buildings and services is known or likely, the report may only caution that an appropriately qualified person be engaged to undertake demolition to avoid contamination of the site.

**Cardno now Stantec**

19 August 2022

APPENDIX

# D

E2 FACTUAL REPORT



now



# PFAS OMP Factual Report

Biannual Sampling Event July/August 2023

RAAF Williams (Laverton)

DEF19008



Prepared for  
Department of Defence

14 December 2023

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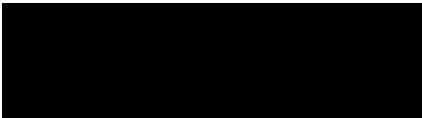
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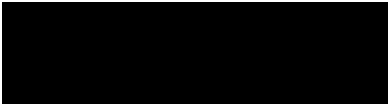
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## Chemical Names

|       |  |
|-------|--|
| DOC   | Dissolved Organic Carbon                   |
| DO    | Dissolved Oxygen                           |
| PFAS  | Per- and Poly-fluoroalkyl Substances       |
| PFHxS | Perfluorohexanesulfonate                   |
| PFOA  | Perfluorooctanoic Acid                     |
| PFOS  | Perfluorooctane Sulfonate                  |
| TDS   | Total Dissolved Solids (salinity of water) |
| TSS   | Total Suspended Solids                     |

## Technical Terms

|        |   |
|--------|---|
| AFFF   | Aqueous Film-Forming Foam                                       |
| AHD    | Australian Height Datum   |
| ANZECC | Australian and New Zealand Environment and Conservation Council |
| ANZG   | Australia and New Zealand Guidelines                            |
| AS     | Australian Standard   |
| COC    | Chain of Custody  |
| DCMM   | Defence Contamination Management Manual                         |
| DSI    | Detailed Site Investigation                                     |
| DQI    | Data Quality Indicator  |
| DQO    | Data Quality Objective  |
| EC     | Electrical Conductivity   |
| EPA    | Environment Protection Authority                                |
| HEPA   | Heads of Environmental Protection Authority                     |
| LOR    | Limit of Reporting  |
| N/A    | Not Applicable  |
| NATA   | National Association of Testing Authorities                     |
| NEPC   | National Environment Protection Council                         |
| NEPM   | National Environmental Protection Measure                       |
| NHMRC  | National Health and Medical Research Council                    |
| MA     | Management Area   |
| QA     | Quality Assurance   |
| QC     | Quality Control   |
| RPD    | Relative Percentage Difference                                  |
| SAQP   | Sampling and Analysis Quality Plan                              |
| SWL    | Standing Water Level  |

## Units

|      |                                |
|------|--------------------------------|
| ha   | Hectares                       |
| mAHD | Metres Australian Height Datum |
| mBGL | Metres Below Ground Level      |

|       |  |
|-------|--|
| mbTOC | Metres below Top of Casing                                     |
| mg/kg | Milligram per Kilogram (approximately equivalent to ppm)       |
| mg/L  | Milligram per Litre  |
| ppm   | Parts per Million  |
| µg/L  | Micrograms per Litre   |
| µS/cm | Micro Siemens per Centimetre (Electrical Conductivity - Water) |

## Site Specific

|      |  |
|------|--|
| OMP  | Ongoing Monitoring Plan                |
| FTG  | Fire Training Ground                   |
| EDMS | Environmental Data Management Software |

# 1 Introduction

## 1.1 Background

Cardno now Stantec (Cardno) was engaged by the Australian Department of Defence (“Defence”) to carry out the Per- and Poly-Fluoroalkyl Substances (PFAS) Ongoing Monitoring Plan (OMP) at Royal Australian Air Force (RAAF) Williams (Laverton) (“the Site”). The location of the Site is presented in Figure 1, Appendix A.

The OMP (Aurecon, 2022a) was carried out in accordance with the scope and limitations presented in Cardno’s Sampling and Analysis Quality Plan (SAQP):

- > Cardno, 25 August 2023, Reference: DEF19008, ‘*PFAS Ongoing Monitoring Plan Sampling and Analysis Quality Plan (SAQP), RAAF Williams (Laverton), Rev 3*’.

For the purposes of this report:

- > The “On-Site Management and Monitoring Area” is defined as the current extents of RAAF Williams (Laverton) (‘the Site’).
- > The “Off-Site Monitoring Area” includes private properties and public land to the west (former Base extents, now referred to as Williams Landing), south-west and south of the Site, and waterbodies and adjacent land situated hydraulically downgradient of the Site, including Skeleton Creek and Sanctuary Lakes.
- > The “Management Area” encompasses the “On-Site Management and Monitoring Area” and the “Off-Site Monitoring Area”. The Management Area and Off-Site Monitoring Area are presented in Figure 1, Appendix A.

The Site is located on Commonwealth Land and is regulated under Commonwealth environmental legislation. The OMP outlines the rationale and scope for the monitoring of the concentrations and extent of PFAS in groundwater and surface water at and around the Site.

## 1.2 Purpose & Objectives

The objective of the ongoing monitoring program is to assess the changes in the nature and extent of PFAS within the environment, specifically where there is an identified potentially elevated risk to a receptor, or a potential future risk to a receptor, associated with Defence’s historical use of legacy Aqueous Film Forming Foam (AFFF).

The purpose of this PFAS OMP factual report is to provide an up-to-date status of the condition of the Site as it is currently understood in relation to the most recent sampling event.

The objectives of the report are:

- > To provide a succinct summary of the second sampling event of the OMP (E2) conducted in July/August 2023 and provision of analytical results with supporting tables and figures.
- > To provide confirmation of the current understanding of risk.
- > To provide supporting data for the assessment of management actions, where relevant.

## 1.3 Relevant Guidelines

This assessment has been undertaken in general accordance with applicable industry standards for a site investigation for the purpose, objectives and scope identified in this report. These standards are set out in:

- > Australian and New Zealand Guidelines, 2018, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.
- > Australian Standard AS 4482-2005, 2005, *Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 – Non-volatile and semi-volatile compounds* (withdrawn as pending revision, referred to for ‘state of knowledge’).
- > Department of Defence, Department of Energy, 2018, *Quality System Manual Schedule B15*.

- > Heads of Environmental Protection Authority’s Australia and New Zealand (HEPA), 2020, *PFAS National Environmental Management Plan (NEMP), Version 2.0*, January 2020.
- > National Environment Protection Council (NEPC), 1999, *National Environmental Protection (Assessment of Site Contamination) Measure (as amended 2013)* (ASC NEPM).
- > National Health and Medical Research Council (NHMRC), 2019, *Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water*, August 2019.
- > Standards Australia, 1998, AS/NZ 5667:1998 *Water quality – sampling*.
- > U.S. Environmental Protection Agency (USEPA), 2006, *Guidance for the Data Quality Objectives Process (EPA QA/G-4)*.
- > USEPA, 2002, *Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8)*.

## 2 Scope of Work

Cardno carried out the following tasks in order to satisfy the purpose and objectives of this assessment.

### 2.1 Groundwater Monitoring

Sampling of selected groundwater monitoring wells was performed in general accordance with the SAQP, applying methods set out in Section 3.1 of this report. The groundwater monitoring wells scheduled for sampling as part of the July/August 2023 biannual sampling event are presented in Table 2-1, and are shown on Figures 2 and 3, Appendix A. Additional groundwater monitoring wells were gauged but not sampled for the purpose of assessing groundwater flow (see Figure 2, Appendix A).

Table 2-1 Groundwater Monitoring Locations

| Item (Monitoring Area)   | Total no. of Locations | Location ID  |
|--|------------------------|--|
| Groundwater Wells to be Gauged and Sampled ( <b>On-Site</b> )  | 26                     | MW102, MW103, MW105, MW107, MW109, MW110, MW115, MW117, MW118, MW120, MW138, MW139, MW140, MW144, MW146, MW152, MW155, MW163, MW182, MW185, MW192, MW200, MW207, MW208, MW211, MW217   |
| Groundwater Wells to be Gauged and Sampled ( <b>Off-Site</b> ) | 10                     | MW121, MW123, MW124, MW126, MW129, MW130, MW131, MW137, MW228, MW229   |
| Groundwater Wells to be Gauged Only ( <b>On-Site</b> )         | 40                     | MW100, MW101, MW104, MW106, MW108, MW111, MW112, MW113, MW114, MW116, MW119, MW145, MW154, MW157, MW159, MW164, MW165, MW168, MW171, MW173, MW175, MW176, MW181, MW186, MW188, MW190, MW194, MW196, MW197, MW201, MW203, MW206, MW209, MW212, MW213, MW214, MW215, MW218, MW222, MW225 |
| Groundwater Wells to be Gauged Only ( <b>Off-Site</b> )        | 10                     | MW122, MW125, MW127, MW128, MW132, MW133, MW134, MW135, MW136, MW230   |

### 2.2 Surface Water Monitoring

The surface water sampling was performed in general accordance with the SAQP, applying methods set out in Section 3.2 of this report. The surface water sampling locations are presented in Table 2-2, and are shown on Figure 4, Appendix A.

Table 2-2 Surface Water Monitoring Locations

| Item (Monitoring Area)                           | Total No. of Monitoring Locations | Location ID  |
|--|-----------------------------------|--|
| Surface Water Locations to be sampled (On-Site)  | 5                                 | SW005, SW006, SW008, SW034, SW043  |
| Surface Water Locations to be sampled (Off-Site) | 24                                | SW012, SW013, SW015, SW020, SW024, SW027, SW030, SW041, SW042, SW045, SW035, SW036, SW037, SW038, SW039, SW049, SW052, SW073, SW078, SW083, SW085, SW086, SW087, SW088 |

### 2.3 Data Management

All the data included in the report have been collected, uploaded to the ESdat database and reviewed according to the data management requirements of the Defence Contamination Management Manual (DCMM) Annex L (Defence, 2021b).

### 2.4 Deviations from the OMP SAQP

Deviations from the SAQP are summarised in Table 2-3 below. A summary of the event is as follows:

- > Sampling was undertaken at 35 groundwater monitoring wells. An additional 43 wells were gauged only.
- > 21 surface water locations were sampled.
- > Seven groundwater monitoring wells could not be gauged and one could not be sampled, the reasons of which are discussed below.
- > Eight surface water locations could not be sampled, the reasons of which are discussed below.

Table 2-3 Deviations from the SAQP

| Location           | Deviation             | Comment/Justification  | Impact on Existing Dataset   |
|--------------------|-----------------------|--|--|
| <b>Groundwater</b> |                       |  |  |
| MW101              | Not Gauged            | Unable to open rusted gatic cover.   | Low Impact - well is gauged only, so only data impact is missing gauging data in this area.  |
| MW104              | Not Gauged            | Unable to open rusted gatic cover.   | Low Impact - well is gauged only, so only data impact is missing gauging data in this area.  |
| MW119              | Not Gauged            | Unable to open, damaged bolts on the gatic lid.  | Low Impact - well is gauged only, so only data impact is missing gauging data in this area.  |
| MW122              | Not Gauged            | Well not located and may be destroyed as it appears to have been covered by concrete.                          | Low Impact - well is gauged only, so only data impact is missing gauging data in this area.  |
| MW127              | Not Gauged            | Well not located and may be destroyed as it appears to have been buried.                                       | Low Impact - well is gauged only, so only data impact is missing gauging data in this area.  |
| MW129              | Not Gauged or Sampled | Well not located, it appears to have been buried during nature strip development works. Potentially destroyed. | Medium Impact – potential data gap for monitoring groundwater downgradient of location MW131 and flowing towards wetland area and Skeleton Creek in the south. Location was previously |

| Location             | Deviation  | Comment/Justification   | Impact on Existing Dataset  |
|----------------------|--|---|---|
|                      |  |   | sampled during the Detailed Site Investigation (DSI) in 2018.   |
| MW194                | Not Gauged   | Unable to access well due to material stored on top of the well.  | Low Impact - well is gauge only. The well was gauged during the first OMP event (E1) in March 2023.   |
| MW230                | Not Gauged   | Well not located and may be destroyed as it appears to have been buried, in area of new developed park. | Low Impact - well is gauged only, so only data impact is missing gauging data in this area.   |
| <b>Surface Water</b> |  |   |   |
| SW008                | Not Sampled  | Location dry  | Medium Impact – Potential data gap for surface water inflow to the Site. Location was previously sampled during DSI in 2018 and reported results below adopted criteria.  |
| SW035                | Not Sampled  | Unable to access property   | Low Impact – These locations are not part of OMP, but were added to the scope for this event to assess where groundwater could be discharging in response to the increasing concentrations at MW131. Based on further review of the Environmental Risk Assessment (ERA; Aurecon, 2022c), Laverton RAAF Swamp is not believed to be connected to regional groundwater, and therefore groundwater impacts at MW131 are unlikely to increase surface water concentrations in Laverton RAAF Swamp. Locations were previously sampled during DSI and ERA in 2019 and 2020. |
| SW036                | Not Sampled  | Unable to access property   |   |
| SW037                | Not Sampled  | Unable to access property   |   |
| SW038                | Not Sampled  | Unable to access property   |   |
| SW039                | Not Sampled  | Unable to access property   |   |
| SW083                | Not Sampled  | Unable to access property   |   |
| SW042                | Sampled in standalone event following completion of E2 OMP event | Location was dry at the time of the E2 sampling event   | Location was dry during E2 sampling event. Location was sampled on 17 <sup>th</sup> October 2023 as requested by Defence after rainfall event.<br><br>This is considered to have minimal impact on the dataset as the location was sampled in the second visit and the concentrations were consistent with previous historical results.   |

### 3 Methodology

#### 3.1 Groundwater Sampling Methodology

Groundwater monitoring was undertaken as detailed in Table 3-1.



Table 3-1 Groundwater Sampling Method

| Activity  | Details  |
|---|--|
| Date of Field Activity  | 31 July to 3 August 2023   |
| Well Gauging  | Standing Water Levels (SWL) were gauged using an interface probe. All wells were measured against a specified mark at the top of the well casing.  |
| Groundwater Field Parameters                                    | <p>Groundwater water quality field parameters were recorded with a water quality meter after sample collection using extra sample water from within the deployed HydraSleeve® decanted into a clean jar. The following field parameters were recorded using a water quality meter:</p> <ul style="list-style-type: none"> <li>▪ pH</li> <li>▪ Electrical conductivity (EC).</li> <li>▪ Oxidation reduction potential (ORP).</li> <li>▪ Dissolved oxygen (DO).</li> <li>▪ Temperature.</li> </ul> <p>Field parameters measured by the water quality meter were recorded on field data records.</p> <p>All field instruments (e.g. water quality meter) were calibrated by the equipment supplier to optimise the accuracy of the measurements taken. Bump tests were also completed daily by field staff during the monitoring event. Calibration certificates and bump test records are provided in Appendix D.</p> <p>Field observations such as colour, presence of suspended solids, turbidity, and the presence of odours, sheen, oily film, nuisance organisms, floating debris or frothing were also recorded on field sampling sheets, if relevant.</p> |
| Deployment of HydraSleeve®                                      | HydraSleeves® were deployed with both a bottom weight and a top weight attached in order for sample collection to begin at the lowest point of the well screen. During the E2 monitoring event, existing HydraSleeves® were replaced by new HydraSleeves® post sampling in preparation of the next event planned for January/February 2024.  |
| Retrieval of HydraSleeves® (Sample Collection)                  | <p>Samples were collected via continuous pull method at a rate of approximately 30 cm per second, allowing the water to pass through the check valve into the sample sleeve.</p> <p>Samples were discharged immediately (to minimise changes in chemistry) via a discharge tube.</p> <p>All HydraSleeves® were replaced with new HydraSleeves® after sampling in preparation for the next sampling event.</p>  |
| Decontamination procedure                                       | <p>New HydraSleeves® were used at each groundwater monitoring well, thus removing the need for decontamination. Where HydraSleeves® could not be used.</p> <p>All re-usable sampling equipment was thoroughly washed using PFAS &amp; phosphate-free detergent, then double rinsed with de-ionised water before the sample collection.</p>   |
| Sample identification, preservation transport and holding times | <p>Each sample was labelled with the sample location, date, project identification number and sampler's initials. Sample labelling and naming was in accordance with Annex L of the DCMM (Defence, 2021b).</p> <p>Samples were collected directly into appropriately preserved laboratory supplied bottles (Teflon-free) and packed in chilled containers for delivery to the laboratory under Chain of Custody (COC) documentation.</p> <p>Sample containers, preservation procedures, sample storage requirements and holding times were undertaken in accordance with those recommended by Standards Australia (AS/NZS 5667.1:1998 and AS 4482.1 as appropriate).</p>   |
| Laboratory Testing  | <p>All groundwater samples were analysed for the full PFAS analytical suite (see SAQP for full list of analytes).</p> <p>The primary laboratory was ALS Global Laboratories (Springvale), and the secondary laboratory (quality control) was Eurofins (Dandenong South). Both laboratories are NATA-accredited for the parameters tested. Copies of the NATA stamped laboratory reports and COC documentation are included in Appendix C.</p>  |
| Laboratory Testing – Quality Control                            | Groundwater quality control samples were collected as set out in the SAQP and analysed for the full PFAS analytical suite.   |

| Activity | Details  |
|----------|--|
|          | <ul style="list-style-type: none"> <li>▪ Field duplicate (intra-laboratory) samples at one per 10 water samples (four samples).</li> <li>▪ Field triplicate (inter-laboratory) samples at one per 10 water samples (four samples).</li> <li>▪ Rinsate blank samples at one per day of sampling [collected off re-used sampling equipment (e.g. interface probe)] (three samples total).</li> <li>▪ Trip blank samples of one per shipment included in the chilled sample containers upon transport to the laboratory (two samples total).</li> </ul> |

### 3.2 Surface Water Sampling Methodology

The surface water monitoring methods and activities are summarised in Table 3-2.

Table 3-2 Surface Water Sampling Method

| Item  | Details  |
|---|--|
| Dates of Field Activity   | 31 July to 3 August 2023.  |
| Flow measurement  | Qualitative flow was measured at surface water monitoring locations where accessible and where flow was occurring using the float method.  |
| Field parameters  | <p>Surface water quality parameter field measurements (i.e. pH, EC, ORP, DO and temperature) were recorded at the time of sampling using a pre-calibrated water quality meter.</p> <p>Field observations such as colour, presence of suspended solids, flow, turbidity, and the presence of odours, sheen, oily film, nuisance organisms, floating debris or frothing were also recorded on field sampling sheets, if relevant.</p>  |
| Sampling Method   | <p>Where possible, the samples were collected directly into sample containers. Where depth permits, the sample bottles were positioned at least 10 cm below the surface water level and above the sediment bed and orientated with the opening facing downwards to avoid the collection of surface films.</p> <p>Where access to surface water was difficult, the samples were collected by attaching the sample bottles to a long-handled sampling device (telescopic pole) which was directly filled by lowering the sample bottle into the surface water body. The sample bottle was attached so that the telescopic pole was not in direct contact with the opening of the sample bottle.</p> <p>Samples were collected in general accordance with Australian/New Zealand Standards (AS/NZS 5667.1:1998) 'Water quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples' and in general accordance with Industrial Waste Resources Guidelines (IWRG), <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes</i>, Publication 701.</p> |
| Decontamination   | All re-usable sampling equipment (e.g. telescopic pole) were thoroughly washed using phosphate-free detergent (Liquinox), and subsequently double rinsed with de-ionised water before the sample collection.   |
| Sample identification, preservation, transport and holding times. | <p>Each sample was labelled with the sample location, date, project identification number and sampler's initials. Sample labelling and naming was in accordance with Annex L of the DCMM (Defence, 2021b).</p> <p>Samples were contained in appropriately preserved laboratory supplied bottles (Teflon-free) and packed in chilled containers for delivery to the laboratory under COC documentation.</p> <p>Sample containers, preservation procedures, sample storage requirements and holding times were undertaken in accordance with those recommended by Standards Australia (AS/NZS 5667.1:1998 and AS 4482.1 as appropriate).</p>   |
| Laboratory Testing  | <p>All surface water samples were analysed for the full PFAS analytical suite (see SAQP for full list of analytes).</p> <p>The primary laboratory was ALS Global Laboratories (Springvale), and the secondary laboratory (quality control) was Eurofins (Dandenong South). Both laboratories are NATA-accredited for the parameters tested. Copies of the NATA stamped laboratory reports and COC documentation are included in Appendix C.</p>  |

| Item                                 | Details  |
|--------------------------------------|--|
| Laboratory Testing – Quality Control | <p>Surface water quality control samples were collected as set out in the SAQP and analysed for the full PFAS analytical suite.</p> <ul style="list-style-type: none"> <li>▪ Field duplicate (intra-laboratory) samples at one per 10 water samples (three samples).</li> <li>▪ Field triplicate (inter-laboratory) samples at one per 10 water samples (three samples).</li> <li>▪ Rinsate blank samples of one per day of sampling were collected off re-used sampling equipment (e.g. telescopic water sampling device) (three samples total).</li> <li>▪ Trip blank samples of one per shipment included in the chilled sample containers upon transport to the laboratory (two samples total).</li> </ul> |

### 3.3 Quality Control / Quality Assurance

A critical aspect of site assessments is the demonstration of the quality of the data used as the basis for the assessment. This is achieved through a Data Validation process which includes a review of the following data quality indicators, as described in the SAQP:

- > QA documentation.
- > Bias.
- > Data Representativeness.
- > Data Precision & Accuracy.
- > Laboratory Performance.
- > Data Comparability.
- > Data Set Completeness.

A detailed review of these aspects has been undertaken, the results of which are presented in Appendix E. A summary of the data validation from the QA/QC review is included in Section 4.5 below.

### 3.4 Assessment Criteria

#### 3.4.1 Groundwater and Surface Water

The adopted assessment criteria for groundwater and surface water are detailed in Table 3-3.

Table 3-3 PFAS Criteria for Groundwater and Surface Water

| Exposure Scenario  | Adopted Assessment Criteria |      |      |                        | Guidance  | Original References |
|--|-----------------------------|------|------|------------------------|---|---------------------|
|  | PFOS+PFHxS                  | PFOA | PFOS |                        |   |                     |
|  | µg/L                        |      |      |                        |   |                     |
| Recreational water quality guideline   | 2                           | 10   | -    | PFAS NEMP (HEPA, 2020) | National Health and Medical Research Council (2019) |                     |
| Interim marine water (95% species protection - slightly to moderately disturbed systems) | -                           | 220  | 0.13 | PFAS NEMP (HEPA, 2020) | National Health and Medical Research Council (2019) |                     |

## 4 Field Observations and Results

### 4.1 Conditions Impacting the Sampling Event

In the seven days prior to the sampling event, 7.4 mm of rain was recorded at the nearest weather station (087031), located on-Site in the north-west portion of the Site. The monthly rainfall (14.8 mm) recorded in the month of July 2023 was lower than the monthly average rainfall in July between 2021 and 2022 of 27.06 mm<sup>1</sup>.

No on-Site activities with potential to impact sample collection or results were noted.

### 4.2 Groundwater

#### 4.2.1 Summary of Field Observations

##### 4.2.1.1 Water Quality Parameter Field Measurements

Groundwater water quality parameter field measurements, water colour and turbidity observations recorded during the groundwater sampling program are presented in field sampling record sheets, included in Appendix D. Groundwater colour varied from clear to cloudy with generally low to medium turbidity. No visual or olfactory signs of contamination were observed at any wells except for a slight sulphuric odour noted at MW140. Water quality parameter field measurements were generally consistent with previous monitoring events.

##### 4.2.1.2 Groundwater Elevation and Migration

Groundwater elevation during this sampling event ranged from 3.301 mAHD (MW123) to 12.980 mAHD (MW203). Regional groundwater flow was interpreted to be in a south-easterly direction, towards the Skeleton Creek and eventually into Port Philip Bay, consistent with the groundwater flow direction noted in previous events.

Groundwater elevation contours and flow directions are shown in Figure 2, Appendix A. Gauging records are presented in Appendix D.

#### 4.2.2 Groundwater Laboratory Results

The results of laboratory analysis have been compared against adopted assessment criteria, and are presented in Table B1, Appendix B, and summarised in Table 4-1 below. Of the 35 samples that were analysed, PFOS was reported above adopted criteria in 31 samples, PFOA in one sample, and PFOS+PFHxS in 24 samples. The laboratory reports are provided in Appendix C.

Table 4-1 Summary of Groundwater Results Exceeding Adopted Criteria

| Analytes | Locations Exceeding Criteria  | Lowest Criteria (µg/L) | Max Conc. (µg/L) <sup>4</sup> | No. Analytical Results >LOR | No. Results Above Criteria | Significant Concentration Changes <sup>3</sup> |
|----------|---|------------------------|-------------------------------|-----------------------------|----------------------------|--|
| PFOS     | MW102, MW103, MW105<br>MW107, MW109, MW110<br>MW117, MW118, MW120<br>MW121, MW123, MW124<br>MW130, MW131, MW137,<br>MW138, MW139, MW140,<br>MW144, MW146, MW152,<br>MW155, MW163, MW182,<br>MW185, MW192, MW200,<br>MW207, MW208, MW228,<br>MW229 | 0.13 <sup>2</sup>      | 523                           | 35                          | 31                         | None   |

<sup>1</sup> Climate statistics for Australian locations – summary statistics Laverton  
[http://www.bom.gov.au/climate/averages/tables/cw\\_087031.shtml](http://www.bom.gov.au/climate/averages/tables/cw_087031.shtml), last accessed 10 August 2023.

| Analytes  | Locations Exceeding Criteria  | Lowest Criteria (µg/L) | Max Conc. (µg/L) <sup>4</sup> | No. Analytical Results >LOR | No. Results Above Criteria | Significant Concentration Changes <sup>3</sup> |
|---|---|------------------------|-------------------------------|-----------------------------|----------------------------|--|
| PFOA  | MW163   | 10 <sup>1</sup>        | 18.8                          | 33                          | 1                          | None   |
| PFOS+PFHxS  | MW102, MW103, MW105<br>MW107, MW110, MW117<br>MW118, MW120, MW123,<br>MW124, MW130, MW131,<br>MW138, MW139, MW152,<br>MW163, MW182, MW185<br>MW192, MW200, MW207<br>MW208, MW228, MW229 | 2 <sup>1</sup>         | 801                           | 35                          | 24                         | None   |
| <b>Note:</b><br>1. Recreational Water (Health) assessment criteria.<br>2. Ecological assessment criteria.<br>3. Significant change defined as an order of magnitude increase or decrease from the previous monitoring round.<br>4. Highest reported concentration during E2 sampling event. |   |                        |                               |                             |                            |  |

Laboratory results have also been compared to available historical data. Findings are summarised as follows:

- > No first-time detections, new exceedances and/or order of magnitude increases/decreases were reported during this event.
- > All concentrations reported during this event were generally consistent with previous sampling.

### 4.3 Surface Water

#### 4.3.1 Summary of Field Observations

##### 4.3.1.1 Water Quality Parameter Field Measurements

Surface water quality parameter field measurements, water colour and turbidity observations recorded during the surface water sampling program are presented in field sampling record sheets, included in Appendix D. Surface water colour varied from clear to brown/black, and was generally observed to have low to medium turbidity. No visual or olfactory signs of contamination were observed at any surface water locations, except for white foam noted on top of water at SW006, SW012 and SW042. Water quality parameter field measurements were generally consistent with previous sampling events.

##### 4.3.1.2 Surface Water Flow

Surface water flow was measured at 22 locations using the float method. The flow rate ranged from stagnant/low to high flow, though low/stagnant flow was observed at most locations. Flow measurements are summarised in Table D2, Appendix D.

#### 4.3.2 Surface Water Laboratory Results

The results of laboratory analysis have been compared against adopted assessment criteria, presented in Table B2, Appendix B, and summarised in Table 4-2 below. Of the 22 samples that were tested, PFOS was reported above adopted criteria in four samples and PFOS+PFHxS in one sample. The laboratory reports are provided in Appendix C.

Table 4-2 Summary of Surface Water Results Exceeding Adopted Criteria

| Analytes | Locations Exceeding Criteria  | Lowest Criteria (µg/L) | Max Conc. (µg/L) <sup>4</sup> | No. Analytical Results >LOR | No. Results Above Criteria <sup>1,2</sup> | Significant Concentration Changes <sup>3</sup> |
|----------|-------------------------------|------------------------|-------------------------------|-----------------------------|---|--|
| PFOS     | SW027, SW034,<br>SW042, SW078 | 0.13 <sup>2</sup>      | 8.02                          | 20                          | 4   | None   |
| PFOA     | None                          | 10 <sup>1</sup>        | 0.14                          | 3                           | None                                      | None   |

| Analytes  | Locations Exceeding Criteria | Lowest Criteria (µg/L) | Max Conc. (µg/L) <sup>4</sup> | No. Analytical Results >LOR | No. Results Above Criteria <sup>1,2</sup> | Significant Concentration Changes <sup>3</sup> |
|---|------------------------------|------------------------|-------------------------------|-----------------------------|---|--|
| PFOS+PFHxS  | SW034                        | 2 <sup>1</sup>         | 10.9                          | 20                          | 1   | SW005 (increase)                               |
| <b>Note:</b><br>1. Recreational water (Health) assessment criteria.<br>2. Ecological assessment criteria.<br>3. Significant change defined as an order of magnitude increase or decrease from the previous monitoring round.<br>4. Highest reported concentration during E2 sampling event. |                              |                        |                               |                             |   |  |

Results have also been compared to available historical data.

- > SW005: PFOS+PFHxS has increased by one order of magnitude from a previous result of <0.01 µg/L in June 2019 to 0.10 µg/L in this event.
- > All other concentrations reported during this event were generally consistent with previous sampling.
- > No first-time detections and/or new exceedances of adopted criteria were reported during this event.

The laboratory reports are provided in Appendix C.

#### 4.4 Changes to the Monitoring Network Condition

The following changes to the monitoring network condition were noted during this event:

- > Monitoring wells MW122, MW127, MW129 and MW230 could not be located and may potentially be destroyed as the area where the wells were located are covered by new concrete (MW122) or new landscaping / vegetation (MW127, MW129 and MW230).
- > The gatic covers and bolts of monitoring wells MW101, MW104 and MW119 require maintenance, as they were observed to be rusted and could not be opened.

#### 4.5 Data Validation

The data validation process has concluded that there are no significant systematic errors in the data collection process. Therefore, the data set used as the basis for the surface water and groundwater assessment is considered valid and complete. A detailed Data Quality Review is included in Appendix E.

## 5 Summary and Conclusions

Cardno conducted the July/August 2023 E2 biannual groundwater and surface water monitoring event at RAAF Williams (Laverton) as part of the PFAS OMP. Groundwater and surface water sampling and testing were undertaken at 35 groundwater monitoring locations and 21 surface water locations.

Groundwater levels were gauged in all accessible wells before sampling, to the extent practicable. Selected locations were unable to be gauged for various reasons, as detailed below in Table 5-1. Regional groundwater flow was interpreted to be in a south-easterly direction towards Skeleton Creek, consistent with previous monitoring events.

Table 5-1 Summary of Results

| Activity                 | Details   |
|--------------------------|---|
| Deviations from OMP SAQP | <ul style="list-style-type: none"> <li>&gt; Four groundwater wells were not located and are presumed to be buried beneath concrete or new landscaping/vegetation and likely destroyed, hence were not gauged.</li> <li>&gt; Four groundwater wells were not gauged as they were inaccessible due to rusted gatic covers and/or material stored on top of well.</li> <li>&gt; One surface water location was not sampled as the location was found to be dry at the time of sampling.</li> </ul> |

| Activity                         | Details  |
|----------------------------------|--|
|                                  | <ul style="list-style-type: none"> <li>&gt; Standalone sampling was conducted in October 2023 at one surface water location (SW042) as the location was found to be dry during E2 sampling event.</li> <li>&gt; Six surface water locations were not sampled as the locations could not be accessed at the time of sampling as they are located in a private fenced area.</li> </ul>   |
| Groundwater Analytical Results   | <ul style="list-style-type: none"> <li>&gt; 35 groundwater samples were collected in total.</li> <li>&gt; No first-time detections, new exceedances and/or order of magnitude increases/decreases were reported during this event.</li> <li>&gt; All concentrations reported during this event were generally consistent with the previous E1 sampling event and the DSI.</li> </ul>   |
| Surface Water Analytical Results | <ul style="list-style-type: none"> <li>&gt; 22 surface water samples were collected in total.</li> <li>&gt; No surface water sampling locations reported a first-time detection and/or new exceedance of adopted criteria for PFOS, PFOA or PFOS+PFHxS.</li> <li>&gt; One surface water location (SW005) reported an order of magnitude increase for PFOS+PFHxS compared to the previous time it was sampled during the DSI.</li> <li>&gt; All other concentrations reported during this event were generally consistent with the previous E1 sampling event and the DSI.</li> </ul> |
| Next Scheduled Monitoring Event  | <ul style="list-style-type: none"> <li>&gt; The next OMP monitoring event is scheduled for February 2024.</li> <li>&gt; SAQP to be reviewed and updated as required prior to the next monitoring event.</li> </ul>   |

## 6 References

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### General References

1. Australian and New Zealand Guidelines (2018), Australian and New Zealand Guidelines for Fresh and Marine Water Quality.
2. Australian Standard (2005), AS 4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 – Non-volatile and semi-volatile compounds (withdrawn as pending revision, referred to for 'state of knowledge').
3. Department of Defence (2019), Pollution Prevention Management Manual – Annex 1L: Pollution Prevention Guidance - Routine Water Quality Monitoring.
4. Department of Defence (2021a), PFAS OMP Factual Report Guidance, May 2021.
5. Department of Defence (2021b), Contamination Management Manual (DCMM), Annex L – Data Management, August 2019, Amended June 2021.
6. Department of Defence, Department of Energy (2018), Quality System Manual Schedule B15 USEPA DQO Process.
7. EPA Victoria (2009), Industrial Waste Resources Guidelines (IWRG), Sampling and Analysis of Waters, Wastewaters, Soils and Wastes, Publication 701.
8. EPA Victoria (2020), Interim Position Statement on PFAS, Publication 1669.4.
9. EPA Victoria (2022), Groundwater Sampling Guidelines, Publication 669.1, February 2022.
10. The Heads of EPAs Australia and New Zealand (HEPA; 2020) PFAS National Environmental Management Plan (NEMP), Version 2.0, January 2020.
11. National Environment Protection Council (NEPC; 2013), National Environmental Protection (Assessment of Site Contamination) Measure (as amended), registered May 2013.
12. National Health and Medical Research Council (2011 – updated 2018) National Water Quality Management Strategy Australian Drinking Water Guidelines 6, August 2018.
13. National Health and Medical Research Council (NHMRC; 2019), Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water, August 2019.
14. Standards Australia/Standards New Zealand (1998), AS5667.1:1998 'Water Quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.'
15. U.S. Environmental Protection Agency (USEPA; 2006), Guidance for the Data Quality Objectives Process (EPA QA/G-4).
16. USEPA (2002), Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8), November 2002.

### Site Specific References

17. Aurecon Australasia Pty Ltd (2020). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)- Detailed Site Investigation*, Prepared for the Department of Defence, November 2020.
18. Aurecon Australasia Pty Ltd (2021). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)- Detailed Site Investigation Addendum*, Prepared for the Department of Defence, December 2021.
19. Aurecon Australasia Pty Ltd (2022a). *Ongoing Management Plan at RAAF Williams (Laverton)*, Prepared for the Department of Defence, August 2022.



20. Aurecon Australasia Pty Ltd (2022b). *PFAS Management Area Plan at RAAF Williams (Laverton)*, Prepared for the Department of Defence, August 2022.
21. Aurecon Australasia Pty Ltd (2022c). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams Laverton – Off-site ecological risk assessment*, Prepared for the Department of Defence, May 2022.
22. Cardno (2023). *PFAS Ongoing Monitoring Plan Sampling and Analysis Quality Plan (SAQP), RAAF Williams (Laverton)*, Rev 3, 25 August 2023.
23. Cardno (2023a), *PFAS Ongoing Monitoring Plan Factual Report, Biannual Sampling Event March 2023, RAAF Williams (Laverton)*, Rev 1, 13 July 2023.

APPENDIX

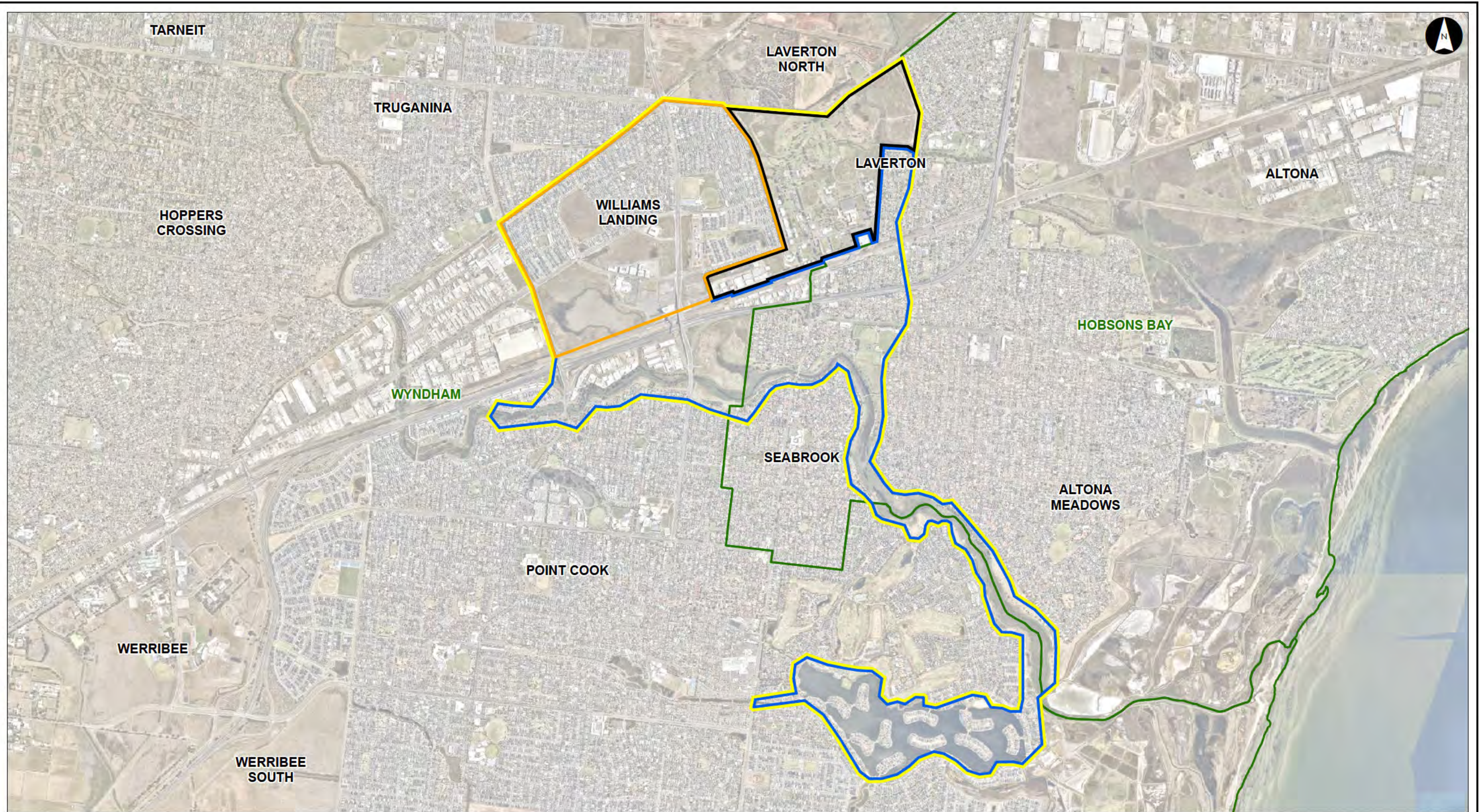
A

FIGURES



now





**Site Locality Plan**

RAAF Williams Laverton  
Ongoing Monitoring Plan  
Client: Department of Defence  
Project Code: DEF19008  
Map: DEF19008-GS-0274-SiteLocalityPlan\_L  
Drawn By: AL  
Figure No: 1 | Rev: 2  
Date: 2023-08-30

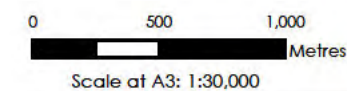


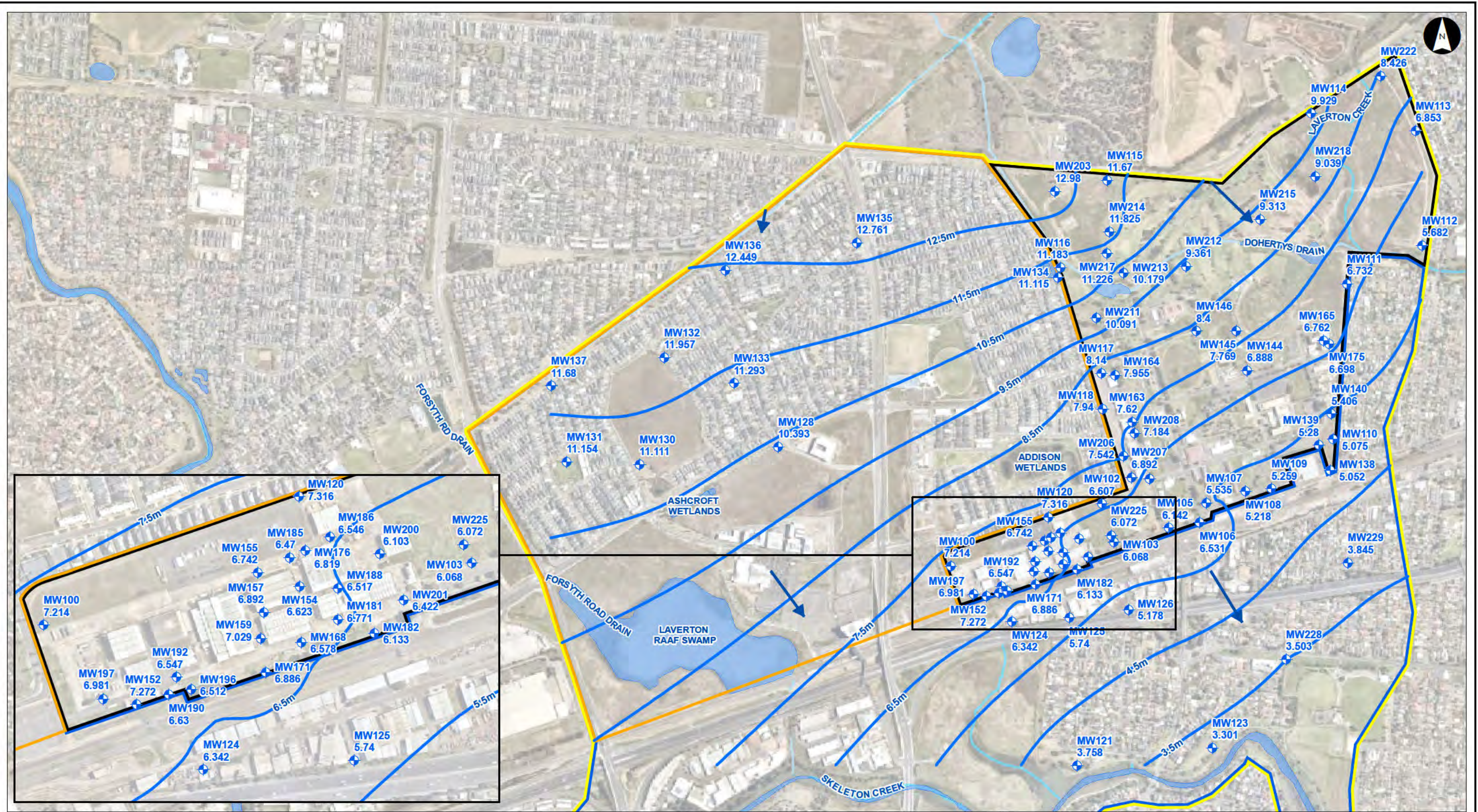
**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- LGA Boundary

Notes:  
1. Coordinate System: GDA 1994 MGA Zone 55

References:  
1. Aerial Imagery Supplied by Nearmap (January, 2023)  
2. LGA and Road Data Supplied by DELWP





**Groundwater Elevation Contours  
- August, 2023**

RAAF Williams Laverton  
Ongoing Monitoring Plan

Client: Department of Defence  
Project Code: DEF19008  
Map: DEF19008-GS-0371-GW\_Contours\_E2\_L  
Drawn By: AL  
Figure No: 2 | Rev: 2  
Date: 2023-10-25

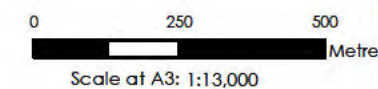


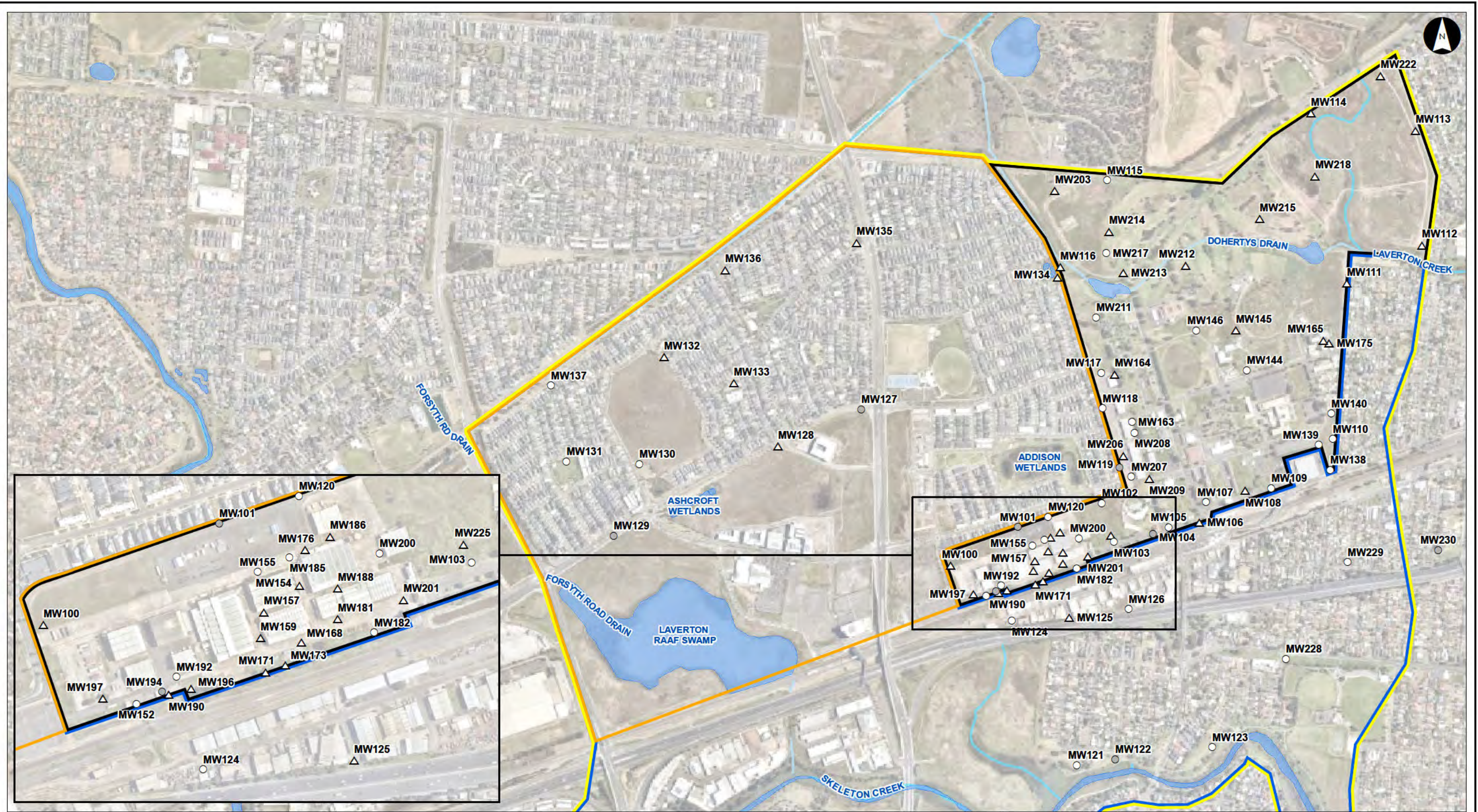
**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- Groundwater Flow Direction
- Groundwater Elevation Contour (mAH)
- + Groundwater Monitoring Well

Notes:  
1. Coordinate System: GDA 1994 MGA Zone 55

References:  
1. Aerial Imagery Supplied by Nearmap (January, 2023)  
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





Groundwater Concentration Notification  
- August, 2023

RAAF Williams Laverton  
Ongoing Monitoring Plan

Client: Department of Defence  
Project Code: DEF19008  
Map: DEF19008-GS-0372-GW\_Conc\_E2\_L  
Drawn By: AL  
Figure No: 3 | Rev: 3  
Date: 2023-10-25

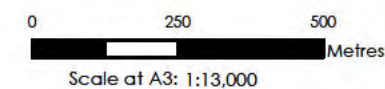


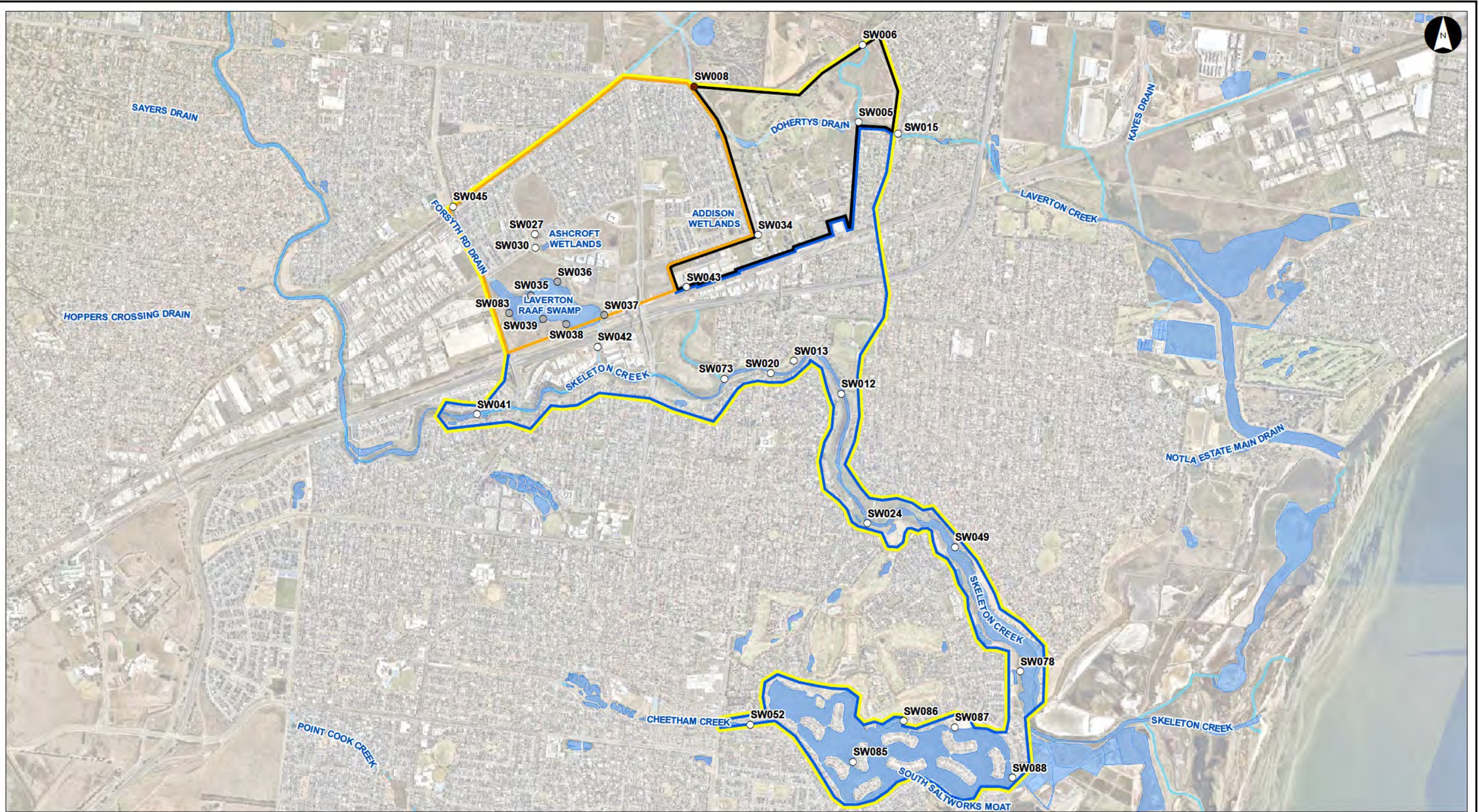
Legend

- |  |  |
|--|--|
| Management Area  | Drainage   |
| On-Site Management and Monitoring Area                       | Watercourse  |
| Off-Site Monitoring Area                                     | Gauge Only   |
| Former Extent of RAAF Williams (Laverton) - Williams Landing | Inaccessible/Not found/ Not sampled/ Gauged          |
| Wetlands/ Waterbodies  | Sampled, 'No first-time detection or new exceedance' |

Notes:  
1. Coordinate System: GDA 1994 MGA Zone 55

References:  
1. Aerial Imagery Supplied by Nearmap (January, 2023)  
2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





Surface Water Concentration Notification - August, 2023

RAAF Williams Laverton Ongoing Monitoring Plan

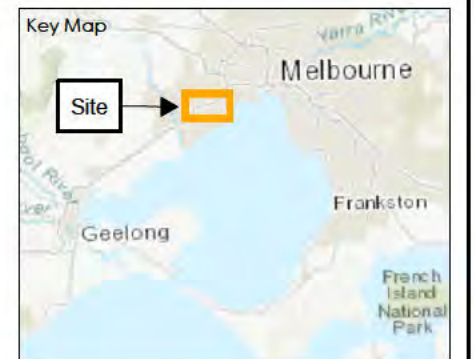
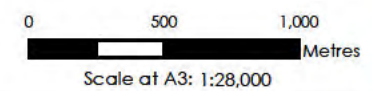
Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0373-SW\_Conc\_E2\_L  
 Drawn By: AL  
 Figure No: 4 | Rev: 3  
 Date: 2023-11-08

**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- Dry
- Inaccessible/Not found/Not sampled
- Sampled, 'No first-time detection or new exceedance'

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP



APPENDIX

# B

DATA ASSESSMENT TABLES



now



|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |  |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|--------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|--|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFCA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecane sulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |  |
|   | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                 | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              |  |
| LOR   | 0.01                                 | 0.01                      | 0.01                  | 0.01                                 | 0.01                                   | 0.01                                  | 0.01                                   | 0.01                                 | 0.05                          | 0.01                            | 0.01                           | 0.01                            | 0.01                          | 0.01                          | 0.01                              | 0.01                              |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                     |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                      |                               |                                 |                                |                                 |                               |                               |                                   |                                   |  |

| Location Code | Date              | Field ID          | Sample Type | Lab Report No. | PFOS  | PFCA  | Sum of PFHxS and PFOS | PFBS  | PFPeS | PFHxS | PFHpS | PFDS  | PFBA  | PFPeA | PFHxA | PFHpA | PFNA  | PFDA  | PFUnDA | PFDoDA |
|---------------|-------------------|-------------------|-------------|----------------|-------|-------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| MW102         | 05 Feb 2019       | 0927_MW102_190205 | Normal      | 639585         | 9.4   | 0.36  | 17.5                  | 1     | 1.4   | 8.1   | 0.8   | <0.01 | 0.26  | 0.37  | 2     | 0.21  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW102_230316 | Normal      | EM2304822      | 9.32  | 0.37  | 17.4                  | 1.18  | 1.37  | 8.10  | 0.74  | <0.02 | 0.2   | 0.44  | 2.05  | 0.25  | <0.02 | <0.02 | <0.02  | <0.02  |
|               |                   | 0927_QC101_230316 | Field_D     | EM2304822      | 9.99  | 0.36  | 18.1                  | 1.14  | 1.23  | 8.08  | 0.63  | <0.02 | 0.2   | 0.40  | 1.86  | 0.22  | <0.02 | <0.02 | <0.02  | <0.02  |
|               |                   | 0927_QC201_230316 | Interlab_D  | 973583         | 12    | 0.42  | 21.4                  | 1.2   | 1.2   | 9.4   | 0.53  | <0.01 | 0.37  | 0.43  | 2.0   | 0.30  | <0.01 | <0.01 | <0.01  | <0.01  |
| 01 Aug 2023   | 0927_MW102_230801 | Normal            | EM2314161   | 10.1           | 0.39  | 18.2  | 1.15                  | 1.23  | 8.05  | 0.64  | <0.02 | 0.2   | 0.46  | 1.90  | 0.24  | <0.02 | <0.02 | <0.02 | <0.02  |        |
| MW103         | 05 Feb 2019       | 0927_MW103_190205 | Normal      | 639585         | 6.8   | 0.27  | 14                    | 0.85  | 1.3   | 7.2   | 0.32  | <0.01 | 0.27  | 0.36  | 2.1   | 0.16  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW103_230316 | Normal      | EM2304822      | 5.91  | 0.28  | 14.7                  | 3.17  | 2.41  | 8.75  | 0.24  | <0.02 | 0.3   | 0.82  | 4.01  | 0.20  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 02 Aug 2023       | 0927_MW103_230802 | Normal      | EM2314161      | 9.46  | 0.47  | 21.7                  | 2.58  | 2.34  | 12.2  | 0.44  | <0.02 | 0.3   | 0.85  | 3.69  | 0.26  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW105         | 05 Feb 2019       | 0927_MW105_190205 | Normal      | 639585         | 41    | 1.2   | 63                    | 1.7   | 2.3   | 22    | 1.5   | <0.01 | 0.58  | 0.7   | 5     | 0.42  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW105_230316 | Normal      | EM2304822      | 69.8  | 4.04  | 183                   | 15.5  | 17.4  | 113   | 3.76  | <0.02 | 1.3   | 7.88  | 51.6  | 2.86  | 0.02  | <0.02 | <0.02  | <0.02  |
|               | 02 Aug 2023       | 0927_MW105_230802 | Normal      | EM2314161      | 51.7  | 3.20  | 134                   | 9.39  | 12.1  | 82.5  | 3.28  | <0.02 | 1.8   | 5.58  | 33.2  | 2.19  | 0.02  | <0.02 | <0.02  | <0.02  |
| MW107         | 04 Feb 2019       | 0927_MW107_190204 | Normal      | 639585         | 0.25  | 0.14  | 4.25                  | 0.51  | 0.69  | 4     | 0.13  | <0.01 | 0.11  | 0.15  | 0.93  | 0.1   | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW107_230316 | Normal      | EM2304822      | 0.42  | 0.17  | 4.78                  | 0.64  | 0.76  | 4.36  | 0.15  | <0.02 | <0.1  | 0.20  | 1.08  | 0.14  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 01 Aug 2023       | 0927_MW107_230801 | Normal      | EM2314161      | 0.43  | 0.17  | 5.55                  | 0.62  | 0.70  | 5.12  | 0.12  | <0.02 | <0.1  | 0.20  | 1.08  | 0.15  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW109         | 04 Feb 2019       | 0927_MW109_190204 | Normal      | 639585         | 0.17  | <0.01 | 0.3                   | 0.01  | 0.01  | 0.13  | <0.01 | <0.01 | <0.05 | <0.01 | 0.02  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 18 Jul 2019       | 0927_MW109_190718 | Normal      | 666870         | 0.18  | <0.01 | 0.33                  | 0.01  | 0.01  | 0.15  | <0.01 | <0.01 | <0.05 | <0.01 | 0.02  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 17 Mar 2023       | 0927_MW109_230317 | Normal      | EM2304822      | 0.41  | 0.01  | 0.81                  | 0.04  | 0.05  | 0.40  | <0.02 | <0.02 | <0.1  | <0.02 | 0.06  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 01 Aug 2023       | 0927_MW109_230801 | Normal      | EM2314161      | 0.47  | 0.02  | 0.88                  | 0.04  | 0.05  | 0.41  | <0.02 | <0.02 | <0.1  | <0.02 | 0.06  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
| MW110         | 04 Feb 2019       | 0927_MW110_190204 | Normal      | 639585         | 40    | 1.6   | 76                    | 4.8   | 5     | 36    | 1.8   | <0.01 | 0.93  | 1.2   | 8.8   | 0.74  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 31 Oct 2019       | 0927_MW110_191031 | Normal      | 686044         | 56    | 2.3   | 108                   | 3.2   | 3.3   | 52    | 1.4   | <0.01 | 0.88  | 1.2   | 11    | 0.87  | 0.02  | <0.01 | <0.01  | <0.01  |
|               |                   | 0927_QC101_191031 | Field_D     | 686044         | 51    | 1.5   | 97                    | 3.7   | 3.9   | 46    | 1.4   | <0.01 | 0.84  | 1.3   | 9.6   | 0.93  | 0.02  | <0.01 | <0.01  | <0.01  |
|               |                   | 0927_QC201_191031 | Interlab_D  | EM1918707      | 78.2  | 1.76  | 134                   | 6.02  | 5.82  | 55.7  | 2.84  | <0.02 | 1.0   | 1.78  | 11.2  | 0.78  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 16 Mar 2023       | 0927_MW110_230316 | Normal      | EM2304822      | 59.1  | 1.37  | 94.7                  | 3.88  | 5.54  | 35.6  | 2.37  | <0.02 | 0.3   | 1.28  | 7.88  | 0.66  | <0.02 | <0.02 | <0.02  | <0.02  |
| 02 Aug 2023   | 0927_MW110_230802 | Normal            | EM2314161   | 62.0           | 1.28  | 95.8  | 3.22                  | 4.84  | 33.8  | 2.10  | <0.03 | 0.3   | 1.12  | 7.00  | 0.63  | <0.03 | <0.03 | <0.03 | <0.03  |        |
| MW115         | 04 Feb 2019       | 0927_MW115_190204 | Normal      | 639585         | <0.01 | <0.01 | 0.01                  | <0.01 | <0.01 | 0.01  | <0.01 | <0.01 | <0.05 | <0.01 | 0.01  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW115_230316 | Normal      | EM2304822      | 0.02  | <0.01 | 0.03                  | <0.02 | <0.02 | 0.01  | <0.02 | <0.02 | <0.1  | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 02 Aug 2023       | 0927_MW115_230802 | Normal      | EM2314161      | 0.01  | <0.01 | 0.01                  | <0.02 | <0.02 | <0.01 | <0.02 | <0.02 | <0.1  | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
| MW117         | 05 Feb 2019       | 0927_MW117_190205 | Normal      | 639585         | 19    | 2.1   | 78                    | 7.9   | 11    | 59    | 2.2   | <0.01 | 1.6   | 2.5   | 18    | 1.4   | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW117_230316 | Normal      | EM2304822      | 12.1  | 1.53  | 66.4                  | 10.3  | 12.3  | 54.3  | 1.81  | <0.02 | 0.6   | 2.85  | 16.8  | 1.22  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 01 Aug 2023       | 0927_MW117_230801 | Normal      | EM2314161      | 13.4  | 0.89  | 42.8                  | 4.07  | 4.31  | 29.4  | 0.74  | <0.02 | 0.5   | 1.54  | 7.72  | 0.64  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW118         | 05 Feb 2019       | 0927_MW118_190205 | Normal      | 639585         | 18    | 0.55  | 30                    | 1.6   | 1.7   | 12    | 1.1   | <0.01 | 0.34  | 0.5   | 3.6   | 0.31  | <0.01 | <0.01 | <0.01  | <0.01  |
|               |                   | 0927_QC124_190205 | Field_D     | 639585         | 21    | 0.53  | 35                    | 1.7   | 1.8   | 14    | 1.2   | <0.01 | 0.35  | 0.63  | 3.7   | 0.32  | <0.01 | <0.01 | <0.01  | <0.01  |
|               |                   | 0927_QC224_190205 | Interlab_D  | EM1901728      | 19.1  | 0.6   | 33.4                  | 1.95  | 2.19  | 14.3  | 0.76  | <0.02 | 0.3   | 0.61  | 3.59  | 0.4   | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 16 Mar 2023       | 0927_MW118_230316 | Normal      | EM2304822      | 21.1  | 1.43  | 51.9                  | 4.44  | 6.14  | 30.8  | 1.88  | <0.02 | 0.4   | 1.30  | 6.29  | 0.72  | <0.02 | <0.02 | <0.02  | <0.02  |
|               |                   | 0927_QC102_230801 | Field_D     | EM2314161      | 21.5  | 1.16  | 46.6                  | 3.35  | 3.75  | 25.1  | 1.13  | <0.02 | 0.3   | 1.15  | 5.86  | 0.60  | <0.02 | <0.02 | <0.02  | <0.02  |
| 01 Aug 2023   | 0927_QC202_230801 | Interlab_D        | 1014137     | 28             | 1.0   | 57    | 3.2                   | 4.2   | 29    | 1.2   | <0.06 | 0.30  | 0.99  | 5.5   | 0.69  | 0.01  | <0.01 | <0.01 | <0.01  |        |
| MW120         | 05 Feb 2019       | 0927_MW120_190205 | Normal      | 639585         | 1.3   | 0.09  | 3.4                   | 0.3   | 0.32  | 2.1   | 0.11  | <0.01 | 0.08  | 0.1   | 0.55  | 0.05  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW120_230316 | Normal      | EM2304822      | 5.17  | 0.31  | 11.2                  | 1.37  | 1.17  | 6.05  | 0.27  | <0.02 | 0.2   | 0.56  | 2.51  | 0.20  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 02 Aug 2023       | 0927_MW120_230802 | Normal      | EM2314161      | 4.56  | 0.21  | 8.47                  | 0.68  | 0.68  | 3.91  | 0.19  | <0.02 | 0.1   | 0.33  | 1.26  | 0.12  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW121         | 24 Jan 2020       | 0927_MW121_200124 | Normal      | 698820         | 0.15  | 0.01  | 0.5                   | 0.04  | 0.05  | 0.35  | <0.01 | <0.01 | <0.05 | 0.03  | 0.08  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 17 Mar 2023       | 0927_MW121_230317 | Normal      | EM2304823      | 0.35  | 0.02  | 0.81                  | 0.04  | 0.05  | 0.46  | 0.02  | <0.02 | <0.1  | 0.02  | 0.10  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 21 Mar 2023       | 0927_MW121_230317 | Normal      | EM2307379      | 0.35  | 0.02  | 0.81                  | 0.04  | 0.05  | 0.46  | 0.02  | <0.02 | <0.1  | 0.02  | 0.10  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 02 Aug 2023       | 0927_MW121_230802 | Normal      | EM2314153-AC   | 0.40  | 0.02  | 0.90                  | 0.06  | 0.06  | 0.50  | <0.02 | <0.02 | <0.1  | 0.02  | 0.09  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
| MW123         | 24 Jan 2020       | 0927_MW123_200124 | Normal      | 698820         | 0.71  | 0.05  | 1.81                  | 0.12  | 0.14  | 1.1   | 0.06  | <0.01 | <0.05 | 0.05  | 0.22  | 0.03  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 17 Mar 2023       | 0927_MW123_230317 | Normal      | EM2304823      | 1.60  | 0.05  | 2.78                  | 0.14  | 0.14  | 1.18  | 0.08  | <0.02 | <0.1  | 0.05  | 0.26  | 0.03  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 21 Mar 2023       | 0927_MW123_230317 | Normal      | EM2307379      | 1.60  | 0.05  | 2.78                  | 0.14  | 0.14  | 1.18  | 0.08  | <0.02 | <0.1  | 0.05  | 0.26  | 0.03  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 02 Aug 2023       | 0927_MW123_230802 | Normal      | EM2314153-AC   | 1.63  | 0.06  | 2.90                  | 0.15  | 0.16  | 1.27  | 0.07  | <0.02 | <0.1  | 0.05  | 0.24  | 0.03  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW124         | 18 Jul 2019       | 0927_MW124_190718 | Normal      | 666870         | 3.1   | 0.2   |                       |       |       |       |       |       |       |       |       |       |       |       |        |        |



|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
| µg/L  | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              |
| LOR   | 0.01                                 | 0.01                      | 0.01                  | 0.01                                 | 0.01                                   | 0.01                                  | 0.01                                   | 0.01                                | 0.05                          | 0.01                            | 0.01                           | 0.01                            | 0.01                          | 0.01                          | 0.01                              | 0.01                              |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                     |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |

| Location Code | Date              | Field ID            | Sample Type       | Lab Report No. | PFOS   | PFOA | Sum of PFHxS and PFOS | PFBS | PFPeS | PFHxS | PFHpS | PFDS  | PFBA  | PFPeA | PFHxA | PFHpA | PFNA  | PFDA  | PFUnDA | PFDoDA |       |
|---------------|-------------------|---------------------|-------------------|----------------|--------|------|-----------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|
| MW126         | 17 Jul 2019       | 0927_MW126_190717   | Normal            | 666870         | 0.06   | 0.01 | 0.28                  | 0.03 | 0.03  | 0.22  | <0.01 | <0.01 | <0.05 | 0.02  | 0.05  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               | 17 Mar 2023       | 0927_MW126_230317   | Normal            | EM2304823      | 0.04   | 0.03 | 0.21                  | 0.08 | 0.03  | 0.17  | <0.02 | <0.02 | <0.1  | 0.13  | 0.13  | 0.03  | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 02 Aug 2023       | 0927_MW126_230802   | Normal            | EM2314153-AC   | 0.03   | 0.02 | 0.26                  | 0.11 | 0.04  | 0.23  | <0.02 | <0.02 | <0.1  | 0.17  | 0.19  | 0.02  | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW129         | 19 Jul 2019       | 0927_MW129_190719   | Normal            | 666870         | 0.42   | 0.04 | 0.86                  | 0.04 | 0.05  | 0.44  | 0.01  | <0.01 | <0.05 | 0.05  | 0.13  | 0.02  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               | MW130             | 19 Jul 2019         | 0927_MW130_190719 | Normal         | 666870 | 3.4  | 0.57                  | 15.4 | 2.4   | 2.9   | 12    | 0.85  | <0.01 | 0.81  | 1.4   | 6.7   | 0.46  | <0.01 | <0.01  | <0.01  | <0.01 |
|               |                   | 0927_QC134_190719   | Field_D           | 666870         | 2.9    | 0.63 | 12.9                  | 2.5  | 2.8   | 10    | 1.2   | <0.01 | 0.91  | 1.7   | 6.1   | 0.49  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               | 0927_QC234_190719 | Interlab_D          | EM1911601         | 4.64           | 0.58   | 19.0 | 4.02                  | 3.37 | 14.4  | 0.50  | <0.05 | 0.9   | 1.74  | 8.70  | 0.57  | <0.05 | <0.05 | <0.05 | <0.05  |        |       |
|               | 17 Mar 2023       | 0927_MW130_230317   | Normal            | EM2304823      | 6.51   | 2.12 | 53.9                  | 10.7 | 14.2  | 47.4  | 1.27  | <0.02 | 0.9   | 4.33  | 20.8  | 1.91  | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 02 Aug 2023       | 0927_MW130_230802   | Normal            | EM2314153-AC   | 7.33   | 1.00 | 34.6                  | 5.86 | 5.97  | 27.3  | 0.67  | <0.02 | 0.7   | 2.32  | 12.3  | 1.06  | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW131         | 19 Jul 2019       | 0927_MW131_190719   | Normal            | 666870         | 2.2    | 0.55 | 11.9                  | 1.7  | 1.9   | 9.7   | 0.74  | <0.01 | 0.68  | 1.1   | 4.2   | 0.36  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               |                   | 0927_QC135_190719   | Field_D           | 666870         | 2.6    | 0.5  | 11.5                  | 1.7  | 1.8   | 8.9   | 0.7   | <0.01 | 0.67  | 0.99  | 4.9   | 0.37  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               |                   | 0927_QC235_190719   | Interlab_D        | EM1911601      | 3.18   | 0.56 | 14.4                  | 2.20 | 2.10  | 11.2  | 0.36  | <0.05 | 0.7   | 1.10  | 5.55  | 0.40  | <0.05 | <0.05 | <0.05  | <0.05  |       |
|               | 17 Mar 2023       | 0927_MW131_230317   | Normal            | EM2304823      | 43.4   | 3.28 | 106                   | 10.1 | 15.0  | 62.5  | 3.40  | <0.02 | 0.9   | 4.32  | 21.2  | 2.08  | 0.02  | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW131_230801   | Normal            | EM2314153-AC   | 79.1   | 5.26 | 184                   | 15.0 | 17.3  | 105   | 4.88  | <0.03 | 1.8   | 6.71  | 39.6  | 3.50  | <0.03 | <0.03 | <0.03  | <0.03  |       |
| MW137         | 16 Jul 2019       | 0927_MW137_190716   | Normal            | 666870         | 0.04   | 0.01 | 0.31                  | 0.13 | 0.09  | 0.27  | <0.01 | <0.01 | 0.07  | 0.04  | 0.17  | 0.01  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               | 22 Mar 2023       | 0927_MW137_230322   | Normal            | EM2305196      | 0.68   | 0.04 | 0.98                  | 0.09 | 0.05  | 0.30  | <0.02 | <0.02 | <0.1  | 0.04  | 0.10  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW137_230801   | Normal            | EM2314153-AC   | 0.25   | 0.03 | 0.41                  | 0.05 | 0.02  | 0.16  | <0.02 | <0.02 | <0.1  | 0.03  | 0.08  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW138         | 24 Jan 2020       | 0927_MW138_200124   | Normal            | 698820         | 3.6    | 0.2  | 8.1                   | 0.51 | 0.64  | 4.5   | 0.19  | <0.01 | 0.14  | 0.19  | 0.93  | 0.09  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               |                   | 0927_QC101_200124   | Field_D           | 698820         | 2.6    | 0.18 | 6.7                   | 0.52 | 0.63  | 4.1   | 0.17  | <0.01 | 0.13  | 0.17  | 0.9   | 0.09  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               |                   | 0927_QC201_200124   | Interlab_D        | EM2001369      | 5.22   | 0.16 | 9.74                  | 0.58 | 0.67  | 4.52  | 0.24  | <0.02 | 0.1   | 0.18  | 0.98  | 0.08  | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 16 Mar 2023       | 0927_MW138_230316   | Normal            | EM2304822      | 3.65   | 0.16 | 8.89                  | 1.00 | 0.92  | 5.24  | 0.20  | <0.02 | <0.1  | 0.21  | 1.13  | 0.10  | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW138_230801   | Normal            | EM2314161      | 9.86   | 0.32 | 18.0                  | 0.97 | 1.15  | 8.11  | 0.41  | <0.02 | 0.1   | 0.27  | 1.52  | 0.17  | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW139         | 24 Jan 2020       | 0927_MW139_200124   | Normal            | 698820         | 44     | 1.8  | 87                    | 2.7  | 4.4   | 43    | 0.96  | 0.11  | 0.88  | 1.5   | 12    | 0.8   | 0.03  | <0.01 | <0.01  | <0.01  |       |
|               | 16 Mar 2023       | 0927_MW139_230316   | Normal            | EM2304822      | 6.33   | 0.47 | 22.3                  | 1.33 | 2.32  | 16.0  | 0.41  | <0.02 | <0.1  | 0.60  | 4.11  | 0.26  | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW139_230801   | Normal            | EM2314161      | 10.5   | 0.90 | 40.2                  | 2.40 | 4.14  | 29.7  | 0.62  | <0.02 | 0.3   | 1.18  | 7.89  | 0.55  | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW140         | 24 Jan 2020       | 0927_MW140_200124   | Normal            | 698820         | 0.44   | 0.02 | 1.19                  | 0.09 | 0.1   | 0.75  | 0.02  | <0.01 | <0.05 | 0.03  | 0.12  | 0.01  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               | 16 Mar 2023       | 0927_MW140_230316   | Normal            | EM2304822      | 0.44   | 0.02 | 0.96                  | 0.10 | 0.08  | 0.52  | <0.02 | <0.02 | <0.1  | 0.03  | 0.12  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW140_230801   | Normal            | EM2314161      | 0.73   | 0.02 | 1.28                  | 0.07 | 0.07  | 0.55  | <0.02 | <0.02 | <0.1  | <0.02 | 0.09  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW144         | 16 Aug 2018       | 0927_GW130/1_180816 | Normal            | 613048         | 1.5    | 0.03 | 2.3                   | 0.08 | 0.1   | 0.8   | 0.03  | <0.01 | <0.05 | 0.03  | 0.13  | 0.01  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               | 16 Mar 2023       | 0927_MW144_230316   | Normal            | EM2304822      | 0.83   | 0.02 | 1.35                  | 0.07 | 0.07  | 0.52  | 0.02  | <0.02 | <0.1  | <0.02 | 0.09  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW144_230801   | Normal            | EM2314161      | 0.86   | 0.02 | 1.41                  | 0.07 | 0.07  | 0.55  | 0.02  | <0.02 | <0.1  | 0.03  | 0.09  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW146         | 16 Aug 2018       | 0927_GW130/3_180816 | Normal            | 613048         | 1.7    | 0.02 | 2.41                  | 0.08 | 0.09  | 0.71  | 0.04  | <0.01 | <0.05 | 0.03  | 0.11  | 0.01  | <0.01 | <0.01 | <0.01  | <0.01  |       |
|               | 16 Mar 2023       | 0927_MW146_230316   | Normal            | EM2304822      | 0.97   | 0.02 | 1.45                  | 0.07 | 0.08  | 0.48  | 0.02  | <0.02 | <0.1  | <0.02 | 0.09  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW146_230801   | Normal            | EM2314161      | 1.00   | 0.02 | 1.49                  | 0.06 | 0.07  | 0.49  | <0.02 | <0.02 | <0.1  | <0.02 | 0.08  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW152         | 19 May 2016       | 0927-GW 155/6       | Normal            | 501516         | 0.55   | 0.31 | <0.01                 | 1.4  | <0.01 | 3.4   | <0.01 | <0.01 | 0.16  | 0.44  | 2.3   | 0.4   | 0.01  | <0.01 | <0.01  | <0.01  |       |
|               | 17 Aug 2018       | 0927_GW155/6_180817 | Normal            | 613048         | 19     | 0.4  | 27.4                  | 0.98 | 1.6   | 8.4   | 0.58  | 0.02  | 0.37  | 0.54  | 2.1   | 0.36  | 0.02  | <0.01 | <0.01  | <0.01  |       |
|               | 17 Mar 2023       | 0927_MW152_230317   | Normal            | EM2304822      | 8.53   | 0.40 | 19.0                  | 3.30 | 3.04  | 10.5  | 0.49  | <0.02 | 0.4   | 0.69  | 2.58  | 0.42  | 0.02  | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW152_230801   | Normal            | EM2314161      | 4.84   | 0.20 | 9.77                  | 1.20 | 1.20  | 4.93  | 0.24  | <0.02 | <0.1  | 0.32  | 1.11  | 0.18  | <0.02 | <0.02 | <0.02  | <0.02  |       |
| MW155         | 19 May 2016       | 0927-GW2/2          | Normal            | 501516         | 0.79   | 0.22 | <0.01                 | 0.16 | <0.01 | 0.86  | <0.01 | <0.01 | 0.19  | 0.51  | 0.51  | 0.3   | 0.01  | <0.01 | <0.01  | <0.01  |       |
|               | 13 Aug 2018       | 0927_GW2/2_180813   | Normal            | 612558         | 5.1    | 0.38 | 6.6                   | 0.16 | 0.19  | 1.5   | 0.09  | <0.01 | 0.33  | 0.79  | 0.73  | 0.43  | 0.02  | <0.01 | <0.01  | <0.01  |       |
|               |                   | 0927_QC107_180813   | Field_D           | 612558         | 4.4    | 0.44 | 6.2                   | 0.2  | 0.37  | 1.8   | 0.18  | 0.02  | 0.37  | 0.86  | 0.96  | 0.48  | 0.02  | <0.01 | <0.01  | <0.01  |       |
|               |                   | 0927_QC207_180813   | Interlab_D        | EM1813168      | 4.02   | 0.45 | 6.18                  | 0.18 | 0.21  | 2.16  | 0.11  | <0.02 | 0.3   | 0.97  | 0.96  | 0.49  | 0.02  | <0.02 | <0.02  | <0.02  |       |
|               | 16 Mar 2023       | 0927_MW155_230316   | Normal            | EM2304822      | 2.65   | 0.24 | 3.70                  | 0.11 | 0.14  | 1.05  | 0.07  | <0.02 | <0.1  | 0.38  | 0.45  | 0.23  | <0.02 | <0.02 | <0.02  | <0.02  |       |
| 01 Aug 2023   | 0927_MW155_230801 | Normal              | EM2314161         | 1.36           | 0.14   | 1.98 | 0.06                  | 0.08 | 0.62  | 0.04  | <0.02 | <0.1  | 0.26  | 0.26  | 0.15  | <0.02 | <0.02 | <0.02 | <0.02  |        |       |
| MW163         | 19 May 2016       | 0927-GW34/1         | Normal            | 501516         | 1,500  | 38   | <0.01                 | 110  | <0.01 | 770   | <0.01 | 0.02  | 15    | 34    | 210   | 21    | <0.01 | <0.01 | 0.02   | <0.01  |       |
|               | 03 Aug 2018       | 0927_GW34/1_180803  | Normal            | 610856         | 720    | 40   | 1,360                 | 75   | 91    | 640   | 30    | <0.2  | 20    | 31    | 180   | 15    | <0.2  | <0.2  | <0.2   | <0.2   |       |
|               | 16 Mar 2023       | 0927_MW163_230316   | Normal            | EM2304822      | 552    | 18.1 | 821                   | 31.4 | 36.5  | 269   | 33.0  | 0.26  | 3.0   | 12.3  | 70.9  | 7.80  | 0.11  | <0.02 | <0.02  | <0.02  |       |
|               | 01 Aug 2023       | 0927_MW163_230801   | Normal            |                |        |      |                       |      |       |       |       |       |       |       |       |       |       |       |        |        |       |

|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFCA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
| LOR   | 0.01                                 | 0.01                      | 0.01                  | 0.01                                 | 0.01                                   | 0.01                                  | 0.01                                   | 0.01                                | 0.05                          | 0.01                            | 0.01                           | 0.01                            | 0.01                          | 0.01                          | 0.01                              | 0.01                              |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                     |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |

| Location Code | Date              | Field ID           | Sample Type | Lab Report No. | PFOS | PFCA  | Sum of PFHxS and PFOS | PFBS  | PFPeS | PFHxS | PFHpS | PFDS  | PFBA  | PFPeA | PFHxA | PFHpA | PFNA  | PFDA  | PFUnDA | PFDoDA |
|---------------|-------------------|--------------------|-------------|----------------|------|-------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| MW182         | 16 Aug 2018       | 0927_GW7/15_180816 | Normal      | 613048         | 2.2  | 0.11  | 5.8                   | 0.46  | 1     | 3.6   | 0.29  | <0.01 | 0.1   | 0.12  | 0.84  | 0.06  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW182_230316  | Normal      | EM2304822      | 1.10 | 0.07  | 3.68                  | 0.31  | 0.31  | 2.58  | 0.07  | <0.02 | <0.1  | 0.07  | 0.39  | 0.03  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 01 Aug 2023       | 0927_MW182_230801  | Normal      | EM2314161      | 0.79 | 0.05  | 2.82                  | 0.25  | 0.26  | 2.03  | 0.06  | <0.02 | <0.1  | 0.06  | 0.32  | 0.02  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW185         | 19 May 2016       | 0927-GW7/5         | Normal      | 501516         | 0.08 | 0.06  | <0.01                 | 0.16  | <0.01 | 0.57  | <0.01 | <0.01 | 0.06  | 0.13  | 0.3   | 0.08  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 13 Aug 2018       | 0927_GW7/5_180813  | Normal      | 612558         | 2.4  | 0.07  | 4                     | 0.11  | 0.17  | 1.6   | 0.07  | <0.01 | 0.07  | 0.1   | 0.26  | 0.05  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW185_230316  | Normal      | EM2304822      | 1.62 | 0.05  | 2.79                  | 0.07  | 0.12  | 1.17  | 0.07  | <0.02 | <0.1  | 0.04  | 0.17  | 0.03  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW192         | 02 Aug 2023       | 0927_MW185_230802  | Normal      | EM2314161      | 1.60 | 0.04  | 2.62                  | 0.07  | 0.11  | 1.02  | 0.05  | <0.02 | <0.1  | 0.04  | 0.15  | 0.02  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 19 May 2016       | 0927-GW 81/3       | Normal      | 501516         | 1.9  | 0.13  | <0.01                 | 0.59  | <0.01 | 2.7   | <0.01 | <0.01 | 0.11  | 0.22  | 1.1   | 0.13  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 09 Aug 2018       | 0927_GW81/3_180809 | Normal      | 611851         | 6.9  | 0.21  | 12.2                  | 0.58  | 0.84  | 5.3   | 0.27  | <0.01 | 0.17  | 0.34  | 1.6   | 0.14  | <0.01 | <0.01 | <0.01  | <0.01  |
| MW200         | 16 Mar 2023       | 0927_MW192_230316  | Normal      | EM2304822      | 2.66 | 0.09  | 4.46                  | 0.25  | 0.23  | 1.80  | 0.11  | <0.02 | <0.1  | 0.07  | 0.44  | 0.04  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 02 Aug 2023       | 0927_MW192_230802  | Normal      | EM2314161      | 1.91 | 0.04  | 2.81                  | 0.08  | 0.10  | 0.90  | 0.04  | <0.02 | <0.1  | 0.03  | 0.15  | 0.02  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 14 Aug 2018       | 0927_GW90/2_180814 | Normal      | 612558         | 18   | 0.41  | 23.8                  | 0.92  | 1.8   | 5.8   | 1.1   | 0.03  | 0.39  | 0.56  | 3.3   | 0.46  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW200_230316  | Normal      | EM2304822      | 7.94 | 0.23  | 12.1                  | 0.83  | 0.74  | 4.13  | 0.28  | <0.02 | 0.2   | 0.32  | 1.69  | 0.23  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW207         | 0927_QC100_230316 | Field_D            | EM2304822   | 8.44           | 0.23 | 12.6  | 0.86                  | 0.75  | 4.19  | 0.29  | <0.02 | 0.1   | 0.32  | 1.71  | 0.23  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 0927_QC200_230316 | Interlab_D         | 973583      | 11             | 0.28 | 15.9  | 0.98                  | 0.77  | 4.9   | 0.26  | <0.01 | 0.33  | 0.41  | 2.0   | 0.31  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 01 Aug 2023       | 0927_MW200_230801  | Normal      | EM2314161      | 7.68 | 0.23  | 12.1                  | 0.93  | 0.76  | 4.43  | 0.25  | <0.02 | 0.1   | 0.33  | 1.77  | 0.25  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 06 Aug 2018       | 0927_GWAM/4_180806 | Normal      | 611486         | 15   | 0.34  | 23.4                  | 0.85  | 1.5   | 8.4   | 0.73  | <0.01 | 0.21  | 0.31  | 2.1   | 0.23  | <0.01 | <0.01 | <0.01  | <0.01  |
| MW208         | 16 Mar 2023       | 0927_MW207_230316  | Normal      | EM2304822      | 11.3 | 0.50  | 21.3                  | 0.86  | 1.10  | 10.0  | 0.73  | <0.02 | 0.1   | 0.32  | 1.68  | 0.22  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 01 Aug 2023       | 0927_MW207_230801  | Normal      | EM2314161      | 12.0 | 0.40  | 20.6                  | 0.66  | 0.99  | 8.60  | 0.58  | <0.02 | 0.1   | 0.29  | 1.46  | 0.21  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 0927_QC100_230801 | Field_D            | EM2314161   | 11.3           | 0.39 | 19.7  | 0.68                  | 1.01  | 8.42  | 0.58  | <0.02 | <0.1  | 0.24  | 1.28  | 0.21  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 0927_QC200_230801 | Interlab_D         | 1014137     | 9.2            | 0.40 | 16.3  | 0.71                  | 0.81  | 7.1   | 0.45  | <0.01 | 0.19  | 0.25  | 1.0   | 0.18  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 19 May 2016       | 0927-GWAM/5        | Normal      | 501516         | 16   | 0.34  | <0.01                 | 1.3   | <0.01 | 14    | <0.01 | <0.01 | 0.16  | 0.35  | 1.7   | 0.19  | <0.01 | <0.01 | <0.01  | <0.01  |
| MW211         | 03 Aug 2018       | 0927_GWAM/5_180803 | Normal      | 610856         | 72   | 1     | 87                    | 1.8   | 2.2   | 15    | 1.3   | 0.3   | 0.39  | 0.67  | 3.7   | 0.37  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW208_230316  | Normal      | EM2304822      | 128  | 3.43  | 185                   | 7.75  | 9.62  | 57.0  | 4.46  | 0.06  | 1.2   | 2.56  | 11.6  | 1.85  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 0927_QC102_230316 | Field_D            | EM2304822   | 120            | 3.45 | 176   | 6.90                  | 8.76  | 55.7  | 4.01  | 0.06  | 1.2   | 2.58  | 10.1  | 1.78  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 0927_QC202_230316 | Interlab_D         | 973583      | 210            | 5.3  | 290   | 10                    | 11    | 80    | 5.0   | <1    | 2.1   | 3.0   | 14    | 2.3   | <1    | <1    | <0.01 | <0.01  | <0.01  |
|               | 01 Aug 2023       | 0927_MW208_230801  | Normal      | EM2314161      | 61.8 | 1.14  | 81.4                  | 2.37  | 2.84  | 19.6  | 1.61  | 0.11  | 0.4   | 0.87  | 4.16  | 0.56  | <0.02 | <0.02 | <0.02  | <0.02  |
| MW217         | 0927_QC101_230801 | Field_D            | EM2314161   | 43.6           | 0.85 | 59.3  | 1.82                  | 2.24  | 15.7  | 1.26  | 0.05  | 0.2   | 0.62  | 3.20  | 0.41  | <0.03 | <0.03 | <0.03 | <0.03  | <0.03  |
|               | 0927_QC201_230801 | Interlab_D         | 1014137     | 54             | 1.2  | 71    | 1.9                   | 2.3   | 17    | 1.1   | <0.1  | 0.21  | 0.84  | 2.9   | 0.55  | 0.01  | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 15 Aug 2018       | 0927_GWB/2_180815  | Normal      | 612558         | 0.05 | 0.01  | 0.48                  | 0.07  | 0.09  | 0.43  | <0.01 | <0.01 | <0.05 | 0.02  | 0.08  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 16 Mar 2023       | 0927_MW211_230316  | Normal      | EM2304822      | 0.11 | 0.02  | 0.55                  | 0.07  | 0.07  | 0.44  | <0.02 | <0.02 | <0.1  | <0.02 | 0.07  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 0927_QC103_230316 | Field_D            | EM2304822   | 0.09           | 0.02 | 0.55  | 0.07                  | 0.06  | 0.46  | <0.02 | <0.02 | <0.1  | <0.02 | 0.07  | <0.02 | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
| MW228         | 0927_QC203_230316 | Interlab_D         | 973583      | 0.14           | 0.02 | 0.75  | 0.09                  | 0.10  | 0.61  | 0.02  | <0.01 | <0.05 | 0.03  | 0.10  | 0.01  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 01 Aug 2023       | 0927_MW211_230801  | Normal      | EM2314161      | 0.10 | 0.01  | 0.56                  | 0.07  | 0.07  | 0.46  | <0.02 | <0.02 | <0.1  | 0.02  | 0.08  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 0927_QC103_230801 | Field_D            | EM2314161   | 0.08           | 0.01 | 0.52  | 0.07                  | 0.07  | 0.44  | <0.02 | <0.02 | <0.1  | <0.02 | 0.07  | <0.02 | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 0927_QC203_230801 | Interlab_D         | 1014137     | 0.09           | 0.02 | 0.58  | 0.07                  | 0.09  | 0.49  | 0.01  | <0.01 | <0.05 | 0.02  | 0.06  | <0.01 | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
| MW229         | 16 Aug 2018       | 0927_GWGA01_180816 | Normal      | 613048         | 0.05 | <0.01 | 0.24                  | 0.03  | 0.03  | 0.19  | <0.01 | <0.01 | <0.05 | <0.01 | 0.03  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 17 Mar 2023       | 0927_MW217_230317  | Normal      | EM2304822      | 0.03 | <0.01 | 0.12                  | <0.02 | <0.02 | 0.09  | <0.02 | <0.02 | <0.1  | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 01 Aug 2023       | 0927_MW217_230801  | Normal      | EM2314161      | 0.02 | <0.01 | 0.09                  | <0.02 | <0.02 | 0.07  | <0.02 | <0.02 | <0.1  | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 10 Mar 2021       | 0927_MW228_210310  | Normal      | 779659         | 9.9  | 0.38  | 18.4                  | 0.73  | 1.4   | 8.5   | 0.69  | <0.01 | 0.23  | 0.32  | 1.7   | 0.21  | <0.01 | <0.01 | <0.01  | <0.01  |
| MW229         | 17 Mar 2023       | 0927_MW228_230317  | Normal      | EM2304823      | 2.35 | 0.08  | 4.36                  | 0.25  | 0.23  | 2.01  | 0.13  | <0.02 | <0.1  | 0.07  | 0.46  | 0.05  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 21 Mar 2023       | 0927_MW228_230317  | Normal      | EM2307379      | 2.35 | 0.08  | 4.36                  | 0.25  | 0.23  | 2.01  | 0.13  | <0.02 | <0.1  | 0.07  | 0.46  | 0.05  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 02 Aug 2023       | 0927_MW228_230802  | Normal      | EM2314153-AC   | 4.75 | 0.21  | 9.66                  | 0.54  | 0.65  | 4.91  | 0.28  | <0.02 | <0.1  | 0.19  | 0.89  | 0.12  | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 10 Mar 2021       | 0927_MW229_210310  | Normal      | 779659         | 1.4  | 0.04  | 2.33                  | 0.08  | 0.12  | 0.93  | 0.04  | <0.01 | <0.05 | 0.05  | 0.16  | 0.02  | <0.01 | <0.01 | <0.01  | <0.01  |
| MW229         | 0927_QC100_210310 | Field_D            | 779659      | 1.4            | 0.04 | 2.25  | 0.08                  | 0.11  | 0.85  | 0.04  | <0.01 | <0.05 | 0.04  | 0.17  | 0.02  | <0.01 | <0.01 | <0.01 | <0.01  | <0.01  |
|               | 0927_QC200_210310 | Interlab_D         | EM2104214   | 0.74           | 0.02 | 1.65  | 0.09                  | 0.07  | 0.91  | 0.02  | <0.02 | <0.10 | <0.02 | 0.14  | <0.02 | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 17 Mar 2023       | 0927_MW229_230317  | Normal      | EM2304823      | 0.90 | 0.03  | 1.83                  | 0.10  | 0.10  | 0.93  | 0.04  | <0.02 | <0.1  | 0.03  | 0.17  | <0.02 | <0.02 | <0.02 | <0.02  | <0.02  |
|               | 21 Mar 2023       | 0927_MW229_230317  | Normal      | EM2307379      | 0.90 | 0.03  | 1.83                  | 0.10  | 0.10  | 0.93  | 0.04  | <0.02 | &     |       |       |       |       |       |        |        |

|   |  |  |  |  | Perfluorocarbons               |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |      |
|---|--|--|--|--|--------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|------|
|   |  |  |  |  | Perfluorodecanoic acid (PFTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |
|   |  |  |  |  | µg/L                           | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  |      |
| LOR   |  |  |  |  | 0.01                           | 0.01                                 | 0.02                               | 0.05  | 0.05  | 0.05   | 0.05  | 0.05  | 0.05   | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01        | 0.01  | 0.01 |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |  |  |  |  |                                |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |      |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |  |  |  |  |                                |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |      |

| Location Code     | Date              | Field ID          | Sample Type | Lab Report No. | Perfluorodecanoic acid (PFTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |       |
|-------------------|-------------------|-------------------|-------------|----------------|--------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|-------|
| MW102             | 05 Feb 2019       | 0927_MW102_190205 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 24.53       | 17.86                                       |       |
|                   | 16 Mar 2023       | 0927_MW102_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 24.0  |       |
|                   |                   | 0927_QC101_230316 | Field_D     | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 24.1  |       |
|                   |                   | 0927_QC201_230316 | Interlab_D  | 973583         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 28.51                                       | 21.82 |
| 01 Aug 2023       | 0927_MW102_230801 | Normal            | EM2314161   | <0.02          | <0.05                          | <0.02                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.02   | <0.02   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 24.4        |   |       |
| MW103             | 05 Feb 2019       | 0927_MW103_190205 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 20.08       | 14.27                                       |       |
|                   | 16 Mar 2023       | 0927_MW103_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 26.1        |   |       |
|                   | 02 Aug 2023       | 0927_MW103_230802 | Normal      | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 32.6        |   |       |
| MW105             | 05 Feb 2019       | 0927_MW105_190205 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 78.24       | 64.2  |       |
|                   | 16 Mar 2023       | 0927_MW105_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 290         |   |       |
|                   | 02 Aug 2023       | 0927_MW105_230802 | Normal      | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 205         |   |       |
| MW107             | 04 Feb 2019       | 0927_MW107_190204 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 7.25        | 4.39  |       |
|                   | 16 Mar 2023       | 0927_MW107_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 7.92        |   |       |
|                   | 01 Aug 2023       | 0927_MW107_230801 | Normal      | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 8.59        |   |       |
| MW109             | 04 Feb 2019       | 0927_MW109_190204 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.34        | 0.3   |       |
|                   | 18 Jul 2019       | 0927_MW109_190718 | Normal      | 666870         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.37        | 0.33  |       |
|                   | 17 Mar 2023       | 0927_MW109_230317 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.97        |   |       |
|                   | 01 Aug 2023       | 0927_MW109_230801 | Normal      | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.05        |   |       |
| MW110             | 04 Feb 2019       | 0927_MW110_190204 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 104.3       | 77.6  |       |
|                   | 31 Oct 2019       | 0927_MW110_191031 | Normal      | 686044         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 133.77      | 110.3                                       |       |
|                   |                   | 0927_QC101_191031 | Field_D     | 686044         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 122.39      | 98.5  |       |
|                   |                   | 0927_QC201_191031 | Interlab_D  | EM1918707      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 165         |   |       |
|                   | 16 Mar 2023       | 0927_MW110_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 118         |   |       |
| 02 Aug 2023       | 0927_MW110_230802 | Normal            | EM2314161   | <0.03          | <0.08                          | <0.03                                | <0.08                              | <0.08   | <0.08   | <0.08  | <0.03   | <0.03   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | 116   |             |   |       |
| MW115             | 04 Feb 2019       | 0927_MW115_190204 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | 0.01  |       |
|                   | 16 Mar 2023       | 0927_MW115_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.03        |   |       |
|                   | 02 Aug 2023       | 0927_MW115_230802 | Normal      | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.01        |   |       |
| MW117             | 05 Feb 2019       | 0927_MW117_190205 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 128.42      | 80.1  |       |
|                   | 16 Mar 2023       | 0927_MW117_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 114         |   |       |
|                   | 01 Aug 2023       | 0927_MW117_230801 | Normal      | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 63.2        |   |       |
| MW118             | 05 Feb 2019       | 0927_MW118_190205 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 40.96       | 30.55                                       |       |
|                   |                   | 0927_QC124_190205 | Field_D     | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 46.49       | 35.53                                       |       |
|                   |                   | 0927_QC224_190205 | Interlab_D  | EM1901728      | <0.02                          | <0.05                                | 0.02                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 43.8        |   |       |
|                   | 16 Mar 2023       | 0927_MW118_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | 0.03                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 74.5        |   |       |
|                   | 01 Aug 2023       | 0927_MW118_230801 | Normal      | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 78.8  |       |
|                   |                   | 0927_QC102_230801 | Field_D     | EM2314161      | <0.02                          | <0.05                                | 0.03                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.02  | <0.02                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 63.9  |       |
| 0927_QC202_230801 | Interlab_D        | 1014137           | <0.01       | <0.01          | <0.05                          | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.01  | <0.05                                     | <0.01                                 | <0.01                                 | 75.29                                       | 58          |   |       |
| MW120             | 05 Feb 2019       | 0927_MW120_190205 | Normal      | 639585         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 5.14        | 3.49  |       |
|                   | 16 Mar 2023       | 0927_MW120_230316 | Normal      | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 17.8        |   |       |
|                   | 02 Aug 2023       | 0927_MW120_230802 | Normal      | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 12.0        |   |       |
| MW121             | 24 Jan 2020       | 0927_MW121_200124 | Normal      | 698820         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.73        | 0.51  |       |
|                   | 17 Mar 2023       | 0927_MW121_230317 | Normal      | EM2304823      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.06        |   |       |
|                   | 21 Mar 2023       | 0927_MW121_230317 | Normal      | EM2307379      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.06        |   |       |
|                   | 02 Aug 2023       | 0927_MW121_230802 | Normal      | EM2314153-AC   | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 1.15        |   |       |
| MW123             | 24 Jan 2020       | 0927_MW123_200124 | Normal      | 698820         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 2.54        | 1.86  |       |
|                   | 17 Mar 2023       | 09                |             |                |                                |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |       |

Table B1 - Groundwater Analytical Results

|   | Perfluorocarbons               |                                      |                                    |   |  |  |   |   |  |   |                                       |                                       |   |             |   |  |
|---|--------------------------------|--------------------------------------|------------------------------------|---|--|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|--|
|   | Perfluorodecanoic acid (PFTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |  |
| LOR   | 0.01                           | 0.01                                 | 0.02                               | 0.05  | 0.05   | 0.05   | 0.05  | 0.02  | 0.02   | 0.01                                      | 0.05                                  | 0.01                                  | 0.01  | 0.01        | 0.01  |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                |                                      |                                    |   |  |  |   |   |  |   |                                       |                                       |   |             |   |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                |                                      |                                    |   |  |  |   |   |  |   |                                       |                                       |   |             |   |  |

| Location Code | Date        | Field ID            | Sample Type       | Lab Report No. | Perfluorodecanoic acid (PFTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |       |
|---------------|-------------|---------------------|-------------------|----------------|--------------------------------|--------------------------------------|------------------------------------|---|--|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|-------|
| MW126         | 17 Jul 2019 | 0927_MW126_190717   | Normal            | 666870         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.43        | 0.29  |       |
|               | 17 Mar 2023 | 0927_MW126_230317   | Normal            | EM2304823      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.64  |       |
|               | 02 Aug 2023 | 0927_MW126_230802   | Normal            | EM2314153-AC   | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.81  |       |
| MW129         | 19 Jul 2019 | 0927_MW129_190719   | Normal            | 666870         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.22        | 0.9   |       |
|               | MW130       | 19 Jul 2019         | 0927_MW130_190719 | Normal         | 666870                         | <0.01                                | <0.01                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 32.79                                       | 15.97 |
|               |             | 0927_QC134_190719   | Field_D           | 666870         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 30.53       | 13.53                                       |       |
|               |             | 0927_QC234_190719   | Interlab_D        | EM1911601      | <0.05                          | <0.12                                | <0.05                              | <0.12   | <0.12  | <0.12  | <0.12   | <0.05   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 39.4  |       |
| 17 Mar 2023   |             | 0927_MW130_230317   | Normal            | EM2304823      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 110   |       |
| MW131         | 02 Aug 2023 | 0927_MW130_230802   | Normal            | EM2314153-AC   | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 64.5  |       |
|               | 19 Jul 2019 | 0927_MW131_190719   | Normal            | 666870         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 24.23       | 12.45                                       |       |
|               |             | 0927_QC135_190719   | Field_D           | 666870         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 24.23       | 12  |       |
|               |             | 0927_QC235_190719   | Interlab_D        | EM1911601      | <0.05                          | <0.12                                | <0.05                              | <0.12   | <0.12  | <0.12  | <0.12   | <0.05   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 27.4  |       |
| MW137         | 17 Mar 2023 | 0927_MW131_230317   | Normal            | EM2304823      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 166   |       |
|               | 01 Aug 2023 | 0927_MW131_230801   | Normal            | EM2314153-AC   | <0.03                          | <0.08                                | <0.03                              | <0.08   | <0.08  | <0.08  | <0.08   | <0.03   | <0.03  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 278   |       |
|               | 16 Jul 2019 | 0927_MW137_190716   | Normal            | 666870         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.89        | 0.32  |       |
| MW138         | 22 Mar 2023 | 0927_MW137_230322   | Normal            | EM2305196      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.30  |       |
|               | 01 Aug 2023 | 0927_MW137_230801   | Normal            | EM2314153-AC   | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.62  |       |
|               | 24 Jan 2020 | 0927_MW138_200124   | Normal            | 698820         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 11.27       | 8.3   |       |
| MW138         |             | 0927_QC101_200124   | Field_D           | 698820         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 9.78        | 6.88  |       |
|               |             | 0927_QC201_200124   | Interlab_D        | EM2001369      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 12.7  |       |
|               | 16 Mar 2023 | 0927_MW138_230316   | Normal            | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 12.6  |       |
|               | 01 Aug 2023 | 0927_MW138_230801   | Normal            | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 22.9  |       |
|               | 24 Jan 2020 | 0927_MW139_200124   | Normal            | 698820         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 113.38      | 88.8  |       |
| MW139         | 16 Mar 2023 | 0927_MW139_230316   | Normal            | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 31.8  |       |
|               | 01 Aug 2023 | 0927_MW139_230801   | Normal            | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 58.2  |       |
|               | 24 Jan 2020 | 0927_MW140_200124   | Normal            | 698820         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.615       | 1.21  |       |
| MW140         | 16 Mar 2023 | 0927_MW140_230316   | Normal            | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.31  |       |
|               | 01 Aug 2023 | 0927_MW140_230801   | Normal            | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.53  |       |
|               | 16 Aug 2018 | 0927_GW130/1_180816 | Normal            | 613048         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 2.71        | 2.33  |       |
| MW144         | 16 Mar 2023 | 0927_MW144_230316   | Normal            | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.62  |       |
|               | 01 Aug 2023 | 0927_MW144_230801   | Normal            | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.71  |       |
|               | 16 Aug 2018 | 0927_GW130/3_180816 | Normal            | 613048         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 2.79        | 2.43  |       |
| MW146         | 16 Mar 2023 | 0927_MW146_230316   | Normal            | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.73  |       |
|               | 01 Aug 2023 | 0927_MW146_230801   | Normal            | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.72  |       |
|               | 19 May 2016 | 0927-GW 155/6       | Normal            | 501516         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.01                                     | <0.05                                 | 0.01                                  | <0.05                                       |             |   |       |
| MW152         | 17 Aug 2018 | 0927_GW155/6_180817 | Normal            | 613048         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | 0.06                                  | <0.01                                       | 34.43       | 27.8  |       |
|               | 17 Mar 2023 | 0927_MW152_230317   | Normal            | EM2304822      | <0.02                          | <0.05                                | 0.02                               | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 30.4  |       |
|               | 01 Aug 2023 | 0927_MW152_230801   | Normal            | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 14.2  |       |
|               | 19 May 2016 | 0927-GW2/2          | Normal            | 501516         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.01                                     | 0.11                                  | 0.08                                  | <0.05                                       |             |   |       |
| MW155         | 13 Aug 2018 | 0927_GW2/2_180813   | Normal            | 612558         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | 0.12                                  | 0.16                                  | <0.01                                       | 10          | 6.98  |       |
|               |             | 0927_QC107_180813   | Field_D           | 612558         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | 0.23                                  | <0.01                                       | 10.33       | 6.64  |       |
|               |             | 0927_QC207_180813   | Interlab_D        | EM1813168      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | 0.12                                  | 0.15                                  | <0.05                                       | 10.1        |   |       |
|               | 16 Mar 2023 | 0927_MW155_230316   | Normal            | EM2304822      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | 0.10                                  | 0.27                                  | <0.05                                       | 5.69        |   |       |
|               | 01 Aug 2023 | 0927_MW155_230801   | Normal            | EM2314161      | <0.02                          | <0.05                                | <0.02                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | 0.07                                  | 0.12                                  | <0.05                                       | 3.16        |   |       |
| MW163         | 19 May 2016 | 0927-GW34/1         | Normal            | 501516         | <0.01                          | <0.01                                | <0.05                              | <0.05   | <0.05  | <0.05  | <0.05   | <0.02   | <0.02  | <0.01                                     | <0.05                                 | <0.01                                 | <0.05                                       |             |   |       |
|               | 03 Aug 2018 | 0927_GW34/1_180803  |                   |                |                                |                                      |                                    |   |  |  |   |   |  |   |                                       |                                       |   |             |   |       |

|   | Perfluorocarbons                   |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |      | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |      |      |      |      |  |
|---|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|------|-------------|---|------|------|------|------|------|--|
|   | Perfluorotridecanoic acid (PFTTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) |      |             |   |      |      |      |      |      |  |
| LOR   | 0.01                               | 0.01                                 | 0.02                               | 0.05  | 0.05  | 0.05   | 0.05  | 0.05  | 0.05   | 0.05                                      | 0.05                                  | 0.05                                  | 0.05  | 0.05 | 0.05        | 0.05  | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |      |             |   |      |      |      |      |      |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |      |             |   |      |      |      |      |      |  |

| Location Code | Date              | Field ID           | Sample Type | Lab Report No. | Perfluorotridecanoic acid (PFTTDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |       |
|---------------|-------------------|--------------------|-------------|----------------|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|-------|
| MW182         | 16 Aug 2018       | 0927_GW7/15_180816 | Normal      | 613048         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 8.78        | 5.91  |       |
|               | 16 Mar 2023       | 0927_MW182_230316  | Normal      | EM2304822      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 4.93  |       |
|               | 01 Aug 2023       | 0927_MW182_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.01       | 3.84  |       |
| MW185         | 19 May 2016       | 0927-GW7/5         | Normal      | 501516         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 4.9         | 4.07  |       |
|               | 13 Aug 2018       | 0927_GW7/5_180813  | Normal      | 612558         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 3.34        |   |       |
|               | 16 Mar 2023       | 0927_MW185_230316  | Normal      | EM2304822      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 3.10  |       |
| MW192         | 02 Aug 2023       | 0927_MW185_230802  | Normal      | EM2314161      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 3.27  |       |
|               | 19 May 2016       | 0927-GW 81/3       | Normal      | 501516         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 16.35       | 12.41                                       |       |
|               | 09 Aug 2018       | 0927_GW81/3_180809 | Normal      | 611851         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 5.69        |   |       |
| MW200         | 16 Mar 2023       | 0927_MW192_230316  | Normal      | EM2304822      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 3.27  |       |
|               | 14 Aug 2018       | 0927_GW90/2_180814 | Normal      | 612558         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 32.77       | 24.21                                       |       |
|               | 01 Aug 2023       | 0927_MW200_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | 0.02                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 16.8  |       |
| MW207         | 06 Aug 2018       | 0927_GWAM/4_180806 | Normal      | 611486         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 29.67       | 23.74                                       |       |
|               | 16 Mar 2023       | 0927_MW207_230316  | Normal      | EM2304822      | <0.02                              | <0.05                                | 0.02                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 26.8  |       |
|               | 01 Aug 2023       | 0927_MW207_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 25.3  |       |
| MW208         | 0927_QC100_230316 | Field_D            | EM2304822   | <0.02          | <0.05                              | 0.03                                 | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 17.2  |       |
|               | 0927_QC200_230316 | Interlab_D         | 973583      | <0.01          | <0.01                              | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 21.89       | 16.18                                       |       |
|               | 01 Aug 2023       | 0927_MW208_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | 0.26                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 16.8        |   |       |
| MW208         | 03 Aug 2018       | 0927_GWAM/5_180803 | Normal      | 610856         | <0.01                              | <0.01                                | 0.26                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 29.67       | 23.74                                       |       |
|               | 16 Mar 2023       | 0927_MW208_230316  | Normal      | EM2304822      | <0.02                              | <0.05                                | 0.41                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 26.8  |       |
|               | 01 Aug 2023       | 0927_MW208_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | 0.42                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 25.3  |       |
| MW211         | 0927_QC101_230801 | Field_D            | EM2304822   | <0.02          | <0.05                              | 0.42                                 | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 24.1  |       |
|               | 0927_QC201_230801 | Interlab_D         | 1014137     | <0.01          | <0.01                              | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 20.63       | 16.7  |       |
|               | 01 Aug 2023       | 0927_MW208_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | 0.24                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 16.8  |       |
| MW211         | 0927_QC101_230801 | Field_D            | EM2314161   | <0.03          | <0.08                              | 0.18                                 | <0.08                              | <0.08   | <0.08   | <0.08  | <0.08   | <0.03   | <0.03  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 16.8  |       |
|               | 0927_QC201_230801 | Interlab_D         | 1014137     | <0.01          | <0.01                              | 0.21                                 | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 32.77       | 24.21                                       |       |
|               | 15 Aug 2018       | 0927_GWB/2_180815  | Normal      | 612558         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 16.8        |   |       |
| MW211         | 16 Mar 2023       | 0927_MW211_230316  | Normal      | EM2304822      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 16.8  |       |
|               | 0927_QC103_230316 | Field_D            | EM2304822   | <0.02          | <0.05                              | <0.02                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 16.6  |       |
|               | 0927_QC203_230316 | Interlab_D         | 973583      | <0.01          | <0.01                              | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 17.2        |   |       |
| MW211         | 01 Aug 2023       | 0927_MW211_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | 0.24                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 21.89                                       | 16.18 |
|               | 0927_QC101_230801 | Field_D            | EM2314161   | <0.03          | <0.08                              | 0.18                                 | <0.08                              | <0.08   | <0.08   | <0.08  | <0.03   | <0.03   | <0.03  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 16.8        |   |       |
|               | 0927_QC201_230801 | Interlab_D         | 1014137     | <0.01          | <0.01                              | 0.21                                 | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 32.77       | 24.21                                       |       |
| MW211         | 15 Aug 2018       | 0927_GWB/2_180815  | Normal      | 612558         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 16.8        |   |       |
|               | 16 Mar 2023       | 0927_MW211_230316  | Normal      | EM2304822      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 16.6  |       |
|               | 0927_QC103_230316 | Field_D            | EM2304822   | <0.02          | <0.05                              | <0.02                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 17.2  |       |
| MW211         | 01 Aug 2023       | 0927_MW211_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 21.89                                       | 16.18 |
|               | 0927_QC103_230801 | Field_D            | EM2314161   | <0.02          | <0.05                              | <0.02                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 16.6        |   |       |
|               | 0927_QC203_230801 | Interlab_D         | 1014137     | <0.01          | <0.01                              | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 17.2        |   |       |
| MW217         | 16 Aug 2018       | 0927_GWGA01_180816 | Normal      | 613048         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 21.89       | 16.18                                       |       |
|               | 17 Mar 2023       | 0927_MW217_230317  | Normal      | EM2304822      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 16.8  |       |
|               | 01 Aug 2023       | 0927_MW217_230801  | Normal      | EM2314161      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 16.8  |       |
| MW228         | 10 Mar 2021       | 0927_MW228_210310  | Normal      | 779659         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 29.67       | 23.74                                       |       |
|               | 17 Mar 2023       | 0927_MW228_230317  | Normal      | EM2304823      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 26.8  |       |
|               | 21 Mar 2023       | 0927_MW228_230317  | Normal      | EM2307379      |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |             |   |       |

|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|   | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              |
| LOR   | 0.0003                               | 0.0005                    | 0.0003                | 0.0005                               | 0.0005                                 | 0.0005                                | 0.0005                                 | 0.0005                              | 0.002                         | 0.0005                          | 0.0005                         | 0.0005                          | 0.0005                        | 0.0005                        | 0.0005                            | 0.0005                            |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                     |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |

| Location Code     | Date              | Field ID          | Sample Type  | Lab Report No. | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |         |
|-------------------|-------------------|-------------------|--------------|----------------|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|---------|
| SW005             | 20 Aug 2018       | 0927_SW05_180820  | Normal       | 613490         | 0.03                                 | <0.01                     | 0.05                  | <0.01                                | <0.01                                  | 0.02                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
|                   | 03 Jun 2019       | 0927_SW05_190603  | Normal       | 662504         | <0.01                                | <0.01                     | <0.01                 | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
|                   | 02 Aug 2023       | 0927_SW005_230802 | Normal       | EM2314152-AC   | 0.02                                 | <0.01                     | 0.10                  | <0.02                                | <0.02                                  | 0.08                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
| SW006             | 20 Aug 2018       | 0927_SW06_180820  | Normal       | 613490         | 0.01                                 | <0.01                     | 0.01                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
|                   | 20 Mar 2023       | 0927_SW006_230320 | Normal       | EM2305194      | <0.01                                | <0.01                     | <0.01                 | <0.02                                | <0.02                                  | <0.01                                 | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
|                   |                   | 0927_QC104_230320 | Field_D      | EM2305194      | 0.01                                 | <0.01                     | 0.02                  | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
|                   | 0927_QC204_230320 | Interlab_D        | 975318       | 0.01           | <0.01                                | 0.01                      | <0.01                 | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
| 01 Aug 2023       | 0927_SW006_230801 | Normal            | EM2314152-AC | <0.01          | <0.01                                | <0.01                     | <0.02                 | <0.02                                | <0.01                                  | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
| SW008             | 20 Aug 2018       | 0927_SW08_180820  | Normal       | 613490         | 0.04                                 | <0.01                     | 0.04                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
| SW012             | 21 Aug 2018       | 0927_SW12_180821  | Normal       | 613490         | 0.15                                 | <0.01                     | 0.28                  | 0.02                                 | 0.02                                   | 0.13                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.04                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
|                   | 03 Jun 2019       | 0927_SW12_190603  | Normal       | 662504         | 0.11                                 | <0.01                     | 0.17                  | <0.01                                | <0.01                                  | 0.06                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.02                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
|                   | 09 Jul 2020       | 0927_SW12_200709  | Normal       | 731055         | 0.094                                | 0.007                     | 0.204                 | 0.017                                | 0.019                                  | 0.11                                  | 0.004                                  | <0.001                              | 0.010                         | 0.009                           | 0.027                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            | <0.001  |
|                   | 05 Aug 2020       | 0927_SW12_200805  | Normal       | 736375         | 0.17                                 | 0.011                     | 0.36                  | 0.027                                | 0.037                                  | 0.19                                  | 0.006                                  | <0.001                              | 0.024                         | 0.012                           | 0.042                          | 0.006                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            | <0.001  |
|                   | 04 Nov 2020       | 0927_SW12_201104  | Normal       | 755594         | 0.11                                 | 0.011                     | 0.21                  | 0.015                                | 0.027                                  | 0.10                                  | 0.005                                  | <0.001                              | 0.010                         | 0.010                           | 0.030                          | 0.005                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            | <0.001  |
|                   | 21 Mar 2023       | 0927_SW012_230321 | Normal       | EM2305195      | 0.10                                 | 0.01                      | 0.24                  | 0.03                                 | <0.02                                  | 0.14                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
| 02 Aug 2023       | 0927_SW012_230802 | Normal            | EM2314151-AD | 0.07           | <0.01                                | 0.15                      | <0.02                 | <0.02                                | 0.08                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
| SW013             | 21 Aug 2018       | 0927_SW13_180821  | Normal       | 613490         | 0.08                                 | <0.01                     | 0.13                  | <0.01                                | <0.01                                  | 0.05                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.02                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
|                   | 17 Mar 2023       | 0927_SW013_230317 | Normal       | EM2305195      | 0.09                                 | <0.01                     | 0.24                  | 0.02                                 | <0.02                                  | 0.15                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
|                   | 02 Aug 2023       | 0927_SW013_230802 | Normal       | EM2314151-AD   | 0.08                                 | <0.01                     | 0.19                  | <0.02                                | <0.02                                  | 0.11                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
| SW015             | 21 Aug 2018       | 0927_SW15_180821  | Normal       | 613490         | 0.01                                 | <0.01                     | 0.01                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
|                   | 03 Jun 2019       | 0927_SW15_190603  | Normal       | 662504         | <0.01                                | <0.01                     | <0.01                 | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             | <0.01   |
|                   | 09 Jul 2020       | 0927_SW15_200709  | Normal       | 731055         | 0.015                                | 0.004                     | 0.032                 | 0.003                                | 0.002                                  | 0.017                                 | <0.001                                 | <0.001                              | 0.008                         | 0.005                           | 0.010                          | 0.002                           | <0.001                        | <0.001                        | <0.001                            | <0.001                            | <0.001  |
|                   |                   | 0927_QC102_200709 | Field_D      | 731055         | 0.015                                | 0.004                     | 0.031                 | 0.003                                | 0.002                                  | 0.016                                 | <0.001                                 | <0.001                              | 0.008                         | 0.005                           | 0.010                          | 0.002                           | <0.001                        | <0.001                        | <0.001                            | <0.001                            | <0.001  |
|                   |                   | 0927_QC202_200709 | Interlab_D   | EM2012086      | 0.0142                               | 0.0062                    | 0.0348                | 0.0054                               | 0.0026                                 | 0.0206                                | <0.0008                                | <0.0008                             | 0.009                         | 0.0066                          | 0.0139                         | 0.0026                          | <0.0008                       | <0.0008                       | <0.0008                           | <0.0008                           | <0.0008 |
|                   | 20 Mar 2023       | 0927_SW015_230320 | Normal       | EM2305195      | 0.01                                 | <0.01                     | 0.02                  | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02   |
| 03 Aug 2023       | 0927_SW015_230803 | Normal            | EM2314151-AD | 0.01           | <0.01                                | 0.06                      | <0.02                 | <0.02                                | 0.05                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |         |
| SW020             | 17 Jan 2019       | 0927_SW20_190117  | Normal       | 637379         | 0.23                                 | 0.03                      | 0.54                  | 0.05                                 | 0.05                                   | 0.31                                  | 0.02                                   | <0.01                               | <0.05                         | 0.03                            | 0.1                            | 0.02                            | <0.01                         | <0.01                         | <0.01                             | <0.01                             |         |
|                   | 03 Jun 2019       | SW20_190603       | Normal       | 662504         | 0.11                                 | <0.01                     | 0.21                  | 0.01                                 | 0.01                                   | 0.1                                   | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.03                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |         |
|                   | 09 Jul 2020       | 0927_SW20_200709  | Normal       | 731055         | 0.11                                 | 0.008                     | 0.28                  | 0.025                                | 0.033                                  | 0.17                                  | 0.004                                  | <0.001                              | 0.011                         | 0.010                           | 0.038                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |         |
|                   |                   | 0927_QC103_200709 | Field_D      | 731055         | 0.12                                 | 0.007                     | 0.3                   | 0.025                                | 0.032                                  | 0.18                                  | 0.005                                  | <0.001                              | 0.011                         | 0.010                           | 0.037                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |         |
|                   |                   | 0927_QC203_200709 | Interlab_D   | EM2012086      | 0.128                                | 0.0138                    | 0.393                 | 0.0355                               | 0.0451                                 | 0.265                                 | 0.0086                                 | <0.0016                             | 0.013                         | 0.0144                          | 0.0573                         | 0.0053                          | <0.0016                       | 0.0024                        | <0.0016                           | <0.0016                           |         |
|                   | 05 Aug 2020       | 0927_SW20_200805  | Normal       | 736375         | 0.11                                 | 0.007                     | 0.191                 | 0.012                                | 0.014                                  | 0.081                                 | 0.002                                  | <0.001                              | 0.024                         | 0.009                           | 0.021                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |         |
|                   | 04 Nov 2020       | 0927_SW20_201104  | Normal       | 755594         | 0.12                                 | 0.012                     | 0.26                  | 0.019                                | 0.037                                  | 0.14                                  | 0.005                                  | <0.001                              | 0.012                         | 0.010                           | 0.037                          | 0.005                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |         |
|                   |                   | 0927_QC101_201104 | Field_D      | 755594         | 0.11                                 | 0.012                     | 0.25                  | 0.017                                | 0.044                                  | 0.14                                  | 0.005                                  | 0.003                               | 0.013                         | 0.015                           | 0.037                          | 0.006                           | <0.001                        | 0.003                         | 0.003                             | 0.003                             |         |
|                   |                   | 0927_QC201_201104 | Interlab_D   | EB2030068      | 0.112                                | 0.0128                    | 0.252                 | 0.0229                               | 0.0195                                 | 0.14                                  | 0.0065                                 | <0.0005                             | 0.008                         | 0.0146                          | 0.0399                         | 0.0058                          | 0.0013                        | 0.0029                        | <0.0005                           | <0.0005                           |         |
|                   | 21 Mar 2023       | 0927_SW020_230317 | Normal       | EM2305195      | 0.10                                 | 0.01                      | 0.24                  | 0.02                                 | <0.02                                  | 0.14                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |         |
| 0927_QC105_230321 |                   | Field_D           | EM2305194    | 0.12           | 0.01                                 | 0.26                      | 0.02                  | 0.02                                 | 0.14                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | 0.04                            | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             |                                   |         |
| 0927_QC205_230321 |                   | Interlab_D        | 975318       | 0.21           | 0.02                                 | 0.47                      | 0.03                  | 0.04                                 | 0.26                                   | 0.02                                  | <0.01                                  | <0.05                               | 0.03                          | 0.06                            | 0.01                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |         |
| 02 Aug 2023       | 0927_SW020_230802 | Normal            | EM2314151-AD | 0.07           | <0.01                                | 0.17                      | <0.02                 | <0.02                                | 0.10                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | 0.02                            | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |         |

|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPEs) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|   | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              |
| LOR   | 0.0003                               | 0.0005                    | 0.0003                | 0.0005                               | 0.0005                                 | 0.0005                                | 0.0005                                 | 0.0005                              | 0.002                         | 0.0005                          | 0.0005                         | 0.0005                          | 0.0005                        | 0.0005                        | 0.0005                            | 0.0005                            |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                     |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |

| Location Code  | Date              | Field ID             | Sample Type | Lab Report No. | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPEs) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|----------------|-------------------|----------------------|-------------|----------------|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
| SW024          | 17 Jan 2019       | 0927_SW24_190117     | Normal      | 637379         | 0.39                                 | 0.03                      | 0.62                  | 0.03                                 | 0.03                                   | 0.23                                  | 0.02                                   | <0.01                               | <0.05                         | 0.02                            | 0.08                           | 0.02                            | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 21 Mar 2023       | 0927_SW024_230317    | Normal      | EM2307274      | 0.10                                 | 0.01                      | 0.22                  | <0.02                                | <0.02                                  | 0.12                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 03 Aug 2023       | 0927_SW024_230803    | Normal      | EM2314151-AD   | 0.07                                 | <0.01                     | 0.15                  | <0.02                                | <0.02                                  | 0.08                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW027          | 03 Jun 2019       | SW27_190603          | Normal      | 662504         | 0.24                                 | 0.01                      | 0.32                  | 0.01                                 | <0.01                                  | 0.08                                  | <0.01                                  | <0.01                               | <0.05                         | 0.02                            | 0.04                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 20 Mar 2023       | 0927_SW027_230320    | Normal      | EM2305195      | 0.47                                 | 0.01                      | 0.57                  | <0.02                                | <0.02                                  | 0.10                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW027_230802    | Normal      | EM2314151-AD   | 0.15                                 | <0.01                     | 0.20                  | <0.02                                | <0.02                                  | 0.05                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW030          | 17 Jan 2019       | 0927_SW30_190117     | Normal      | 637379         | 0.04                                 | 0.06                      | 0.04                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | 0.02                            | 0.03                           | 0.02                            | <0.01                         | 0.02                          | <0.01                             | <0.01                             |
|                | 20 Mar 2023       | 0927_SW030_230320    | Normal      | EM2305195      | 0.04                                 | 0.02                      | 0.09                  | <0.02                                | <0.02                                  | 0.05                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW030_230802    | Normal      | EM2314151-AD   | 0.01                                 | <0.01                     | 0.01                  | <0.02                                | <0.02                                  | <0.01                                 | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW034          | 03 Jun 2019       | 0927_SW34_190603     | Normal      | 662504         | 1.1                                  | 0.01                      | 1.31                  | 0.02                                 | 0.02                                   | 0.21                                  | 0.02                                   | <0.01                               | <0.05                         | 0.01                            | 0.09                           | 0.01                            | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 20 Mar 2023       | 0927_SW034_230320    | Normal      | EM2305194      | 34.6                                 | 0.96                      | 55.6                  | 2.70                                 | 3.84                                   | 21.0                                  | 0.98                                   | 0.08                                | 0.4                           | 1.25                            | 7.39                           | 1.23                            | 0.02                          | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW034_230802    | Normal      | EM2314152-AC   | 8.02                                 | 0.14                      | 10.9                  | 0.34                                 | 0.36                                   | 2.88                                  | 0.20                                   | <0.02                               | 0.1                           | 0.19                            | 1.11                           | 0.17                            | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW035          | 06 Feb 2019       | 0927_SW35_190206     | Normal      | 639585         | 1.6                                  | 0.12                      | 2.29                  | 0.08                                 | 0.08                                   | 0.69                                  | 0.02                                   | <0.01                               | 0.11                          | 0.11                            | 0.31                           | 0.05                            | 0.01                          | 0.02                          | <0.01                             | <0.01                             |
|                | 27 Oct 2020       | 0927_SW35_201027     | Normal      | 753780         | 2.0                                  | 0.024                     | 2.11                  | 0.010                                | 0.010                                  | 0.11                                  | 0.011                                  | <0.001                              | 0.015                         | 0.013                           | 0.035                          | 0.006                           | 0.007                         | 0.031                         | <0.001                            | <0.001                            |
| SW036          | 06 Feb 2019       | 0927_SW36_190206     | Normal      | 639585         | 0.61                                 | 0.05                      | 0.92                  | 0.03                                 | 0.04                                   | 0.31                                  | 0.02                                   | <0.01                               | <0.05                         | 0.03                            | 0.1                            | 0.01                            | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                |                   | 0927_QC125_190206_SV | Field_D     | 639585         | 0.56                                 | 0.05                      | 0.84                  | 0.03                                 | 0.03                                   | 0.28                                  | 0.02                                   | <0.01                               | <0.05                         | 0.02                            | 0.1                            | 0.01                            | <0.01                         | 0.01                          | <0.01                             | <0.01                             |
|                |                   | 0927_QC225_190206_SV | Interlab_D  | EM1901728      | 0.6                                  | 0.05                      | 0.95                  | 0.04                                 | 0.04                                   | 0.35                                  | 0.02                                   | <0.02                               | <0.1                          | 0.03                            | 0.11                           | 0.04                            | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 27 Oct 2020       | 0927_SW36_201027     | Normal      | 753780         | 0.15                                 | 0.014                     | 0.202                 | 0.006                                | 0.006                                  | 0.052                                 | 0.002                                  | <0.001                              | 0.008                         | 0.008                           | 0.018                          | 0.004                           | 0.002                         | 0.008                         | <0.001                            | <0.001                            |
|                |                   | 0927_QC102_201027    | Field_D     | 753780         | 0.25                                 | 0.014                     | 0.3                   | 0.006                                | 0.013                                  | 0.050                                 | 0.002                                  | <0.001                              | 0.007                         | 0.008                           | 0.016                          | 0.004                           | 0.002                         | 0.009                         | <0.001                            | <0.001                            |
|                | 0927_QC202_201027 | Interlab_D           | EB2028871   | 0.233          | 0.0158                               | 0.285                     | 0.0071                | 0.0061                               | 0.0522                                 | 0.0023                                | <0.0008                                | 0.008                               | 0.0092                        | 0.0209                          | 0.0046                         | 0.0027                          | 0.0107                        | <0.0008                       | <0.0008                           |                                   |
| SW037          | 06 Feb 2019       | 0927_SW37_190206     | Normal      | 639585         | 0.03                                 | 0.04                      | 0.03                  | <0.01                                | <0.01                                  | <0.01                                 | <0.01                                  | <0.01                               | <0.05                         | 0.01                            | 0.02                           | <0.01                           | <0.01                         | 0.01                          | <0.01                             | <0.01                             |
| SW038          | 06 Feb 2019       | 0927_SW38_190206     | Normal      | 639585         | 0.69                                 | 0.06                      | 0.96                  | 0.03                                 | 0.03                                   | 0.27                                  | 0.01                                   | <0.01                               | <0.05                         | 0.04                            | 0.12                           | 0.02                            | <0.01                         | 0.01                          | <0.01                             | <0.01                             |
| SW039          | 06 Feb 2019       | 0927_SW39_190206     | Normal      | 639585         | 1                                    | 0.06                      | 1.28                  | 0.03                                 | 0.03                                   | 0.28                                  | 0.01                                   | <0.01                               | 0.06                          | 0.04                            | 0.13                           | 0.02                            | <0.01                         | 0.02                          | <0.01                             | <0.01                             |
|                | 27 Oct 2020       | 0927_SW39_201027     | Normal      | 753780         | 0.23                                 | 0.013                     | 0.308                 | 0.008                                | 0.009                                  | 0.078                                 | 0.003                                  | <0.001                              | 0.012                         | 0.012                           | 0.029                          | 0.005                           | 0.001                         | 0.004                         | <0.001                            | <0.001                            |
| SW041          | 03 Jun 2019       | 0927_SW41_190603     | Normal      | 662504         | 0.16                                 | <0.01                     | 0.18                  | <0.01                                | <0.01                                  | 0.02                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 09 Jul 2020       | 0927_SW41_200709     | Normal      | 731055         | 0.009                                | 0.004                     | 0.016                 | 0.002                                | 0.001                                  | 0.007                                 | <0.001                                 | <0.001                              | 0.006                         | 0.005                           | 0.006                          | 0.002                           | <0.001                        | 0.001                         | <0.001                            | <0.001                            |
|                | 05 Aug 2020       | 0927_SW41_200805     | Normal      | 736375         | 0.008                                | 0.005                     | 0.014                 | 0.002                                | <0.001                                 | 0.006                                 | <0.001                                 | <0.001                              | 0.007                         | 0.005                           | 0.007                          | 0.002                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |
|                | 17 Mar 2023       | 0927_SW041_230317    | Normal      | EM2305195      | <0.01                                | <0.01                     | 0.01                  | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW041_230802    | Normal      | EM2314151-AD   | <0.01                                | <0.01                     | <0.01                 | <0.02                                | <0.02                                  | <0.01                                 | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| SW042          | 03 Jun 2019       | 0927_SW42_190603     | Normal      | 662504         | 0.06                                 | 0.01                      | 0.09                  | <0.01                                | <0.01                                  | 0.03                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | 0.01                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                | 09 Jul 2020       | 0927_SW42_200709     | Normal      | 731055         | 0.33                                 | 0.017                     | 0.394                 | 0.008                                | 0.007                                  | 0.064                                 | 0.003                                  | <0.001                              | 0.011                         | 0.010                           | 0.026                          | 0.004                           | 0.002                         | 0.009                         | <0.001                            | <0.001                            |
|                | 05 Aug 2020       | 0927_SW42_200805     | Normal      | 736375         | 0.17                                 | 0.012                     | 0.222                 | 0.006                                | 0.006                                  | 0.052                                 | 0.001                                  | <0.001                              | 0.011                         | 0.009                           | 0.02                           | 0.003                           | 0.002                         | 0.008                         | <0.001                            | 0.002                             |
|                | 17 Oct 2023       | SW042_20231017       | Normal      | EM2318509      | 0.18                                 | 0.01                      | 0.25                  | <0.02                                | <0.02                                  | 0.07                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | -                               | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
| QC100_20231017 |                   | Field_D              | EM2318509   | 0.17           | 0.01                                 | 0.24                      | <0.02                 | <0.02                                | 0.07                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | 0.02                            | -                              | <0.02                           | <0.02                         | <0.02                         | <0.02                             |                                   |
|                | QC200_20231017    | Interlab_D           | 1036324     | 0.16           | 0.01                                 | 0.22                      | <0.01                 | <0.01                                | 0.06                                   | <0.01                                 | <0.01                                  | <0.05                               | 0.01                          | 0.02                            | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |
| SW043          | 03 Jun 2019       | 0927_SW43_190603     | Normal      | 662504         | 0.11                                 | <0.01                     | 0.15                  | <0.01                                | <0.01                                  | 0.04                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                |                   | 0927_QC127_190603    | Field_D     | 662504         | 0.11                                 | <0.01                     | 0.15                  | <0.01                                | <0.01                                  | 0.04                                  | <0.01                                  | <0.01                               | <0.05                         | <0.01                           | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |
|                |                   | 0927_QC227_190603    | Interlab_D  | EB1916408      | 0.1                                  | <0.01                     | 0.15                  | <0.02                                | <0.02                                  | 0.05                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |
|                | 02 Aug 2023       | 0927_SW043_230802    | Normal      | EM2314152-AC   | 0.09                                 | <0.01                     | 0.14                  | <0.02                                | <0.02                                  | 0.05                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |

|   | Perfluorocarbons                     |                           |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
|---|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|
|   | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |
|   | µg/L                                 | µg/L                      | µg/L                  | µg/L                                 | µg/L                                   | µg/L                                  | µg/L                                   | µg/L                                | µg/L                          | µg/L                            | µg/L                           | µg/L                            | µg/L                          | µg/L                          | µg/L                              | µg/L                              |
| LOR   | 0.0003                               | 0.0005                    | 0.0003                | 0.0005                               | 0.0005                                 | 0.0005                                | 0.0005                                 | 0.0005                              | 0.002                         | 0.0005                          | 0.0005                         | 0.0005                          | 0.0005                        | 0.0005                        | 0.0005                            | 0.0005                            |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                      | 10                        | 2                     |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        | 0.13                                 | 220                       |                       |                                      |  |                                       |  |                                     |                               |                                 |                                |                                 |                               |                               |                                   |                                   |

| Location Code | Date              | Field ID          | Sample Type  | Lab Report No. | Perfluorooctane sulfonic acid (PFOS) | Perfluorooctanoate (PFOA) | Sum of PFHxS and PFOS | Perfluorobutane sulfonic acid (PFBS) | Perfluoropentane sulfonic acid (PFPeS) | Perfluorohexane sulfonic acid (PFHxS) | Perfluoroheptane sulfonic acid (PFHpS) | Perfluorodecanesulfonic acid (PFDS) | Perfluorobutanoic acid (PFBA) | Perfluoropentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnDA) | Perfluorododecanoic acid (PFDoDA) |       |
|---------------|-------------------|-------------------|--------------|----------------|--------------------------------------|---------------------------|-----------------------|--------------------------------------|--|---------------------------------------|--|-------------------------------------|-------------------------------|---------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------------------|-------|
| SW045         | 08 Jul 2020       | 0927_SW45_200708  | Normal       | 731055         | 0.006                                | 0.008                     | 0.008                 | <0.001                               | <0.001                                 | 0.002                                 | <0.001                                 | <0.001                              | 0.008                         | 0.003                           | 0.007                          | 0.002                           | 0.001                         | 0.005                         | <0.001                            | <0.001                            |       |
|               | 05 Aug 2020       | 0927_SW45_200805  | Normal       | 736375         | 0.009                                | 0.009                     | 0.01                  | <0.001                               | <0.001                                 | 0.001                                 | <0.001                                 | <0.001                              | 0.01                          | 0.003                           | 0.007                          | 0.002                           | 0.001                         | 0.008                         | <0.001                            | <0.001                            |       |
|               | 20 Mar 2023       | 0927_SW045_230320 | Normal       | EM2305195      | <0.01                                | 0.01                      | 0.01                  | <0.02                                | <0.02                                  | 0.01                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02 |
|               | 02 Aug 2023       | 0927_SW045_230802 | Normal       | EM2314151-AD   | 0.02                                 | <0.01                     | 0.02                  | <0.02                                | <0.02                                  | <0.01                                 | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02 |
| SW049         | 09 Jul 2020       | 0927_SW49_200709  | Normal       | 731055         | 0.15                                 | 0.008                     | 0.32                  | 0.021                                | 0.028                                  | 0.17                                  | 0.007                                  | <0.001                              | 0.011                         | 0.011                           | 0.038                          | 0.005                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |       |
|               | 05 Aug 2020       | 0927_SW49_200805  | Normal       | 736375         | 0.2                                  | 0.012                     | 0.39                  | 0.025                                | 0.034                                  | 0.19                                  | 0.008                                  | <0.001                              | 0.019                         | 0.012                           | 0.039                          | 0.006                           | 0.001                         | 0.003                         | <0.001                            | <0.001                            |       |
|               | 04 Nov 2020       | 0927_SW49_201104  | Normal       | 755594         | 0.14                                 | 0.010                     | 0.237                 | 0.011                                | 0.025                                  | 0.097                                 | 0.004                                  | <0.001                              | 0.010                         | 0.012                           | 0.024                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |       |
|               | 17 Mar 2023       | 0927_SW049_230317 | Normal       | EM2305195      | 0.12                                 | 0.01                      | 0.24                  | 0.03                                 | <0.02                                  | 0.12                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.03                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
| 03 Aug 2023   | 0927_SW049_230803 | Normal            | EM2314151-AD | 0.09           | <0.01                                | 0.19                      | <0.02                 | <0.02                                | 0.10                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | 0.02                            | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
| SW052         | 08 Jul 2020       | 0927_SW52_200708  | Normal       | 731055         | 0.016                                | 0.005                     | 0.028                 | 0.003                                | 0.002                                  | 0.012                                 | <0.001                                 | <0.001                              | 0.007                         | 0.005                           | 0.008                          | 0.002                           | <0.001                        | 0.001                         | <0.001                            | <0.001                            |       |
|               | 17 Mar 2023       | 0927_SW052_230317 | Normal       | EM2305195      | 0.02                                 | <0.01                     | 0.04                  | <0.02                                | <0.02                                  | 0.02                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02 |
|               | 03 Aug 2023       | 0927_SW052_230803 | Normal       | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                  | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02 |
| SW073         | 02 Nov 2020       | 0927_SW73_201102  | Normal       | 755594         | 0.079                                | 0.010                     | 0.189                 | 0.014                                | 0.029                                  | 0.11                                  | 0.003                                  | <0.001                              | 0.012                         | 0.010                           | 0.027                          | 0.004                           | <0.001                        | 0.002                         | <0.001                            | <0.001                            |       |
|               | 17 Mar 2023       | 0927_SW073_230317 | Normal       | EM2305195      | 0.43                                 | 0.02                      | 1.30                  | 0.10                                 | 0.11                                   | 0.87                                  | 0.03                                   | <0.02                               | <0.1                          | 0.02                            | 0.13                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               | 02 Aug 2023       | 0927_SW073_230802 | Normal       | EM2314151-AD   | 0.05                                 | <0.01                     | 0.15                  | <0.02                                | <0.02                                  | 0.10                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             | <0.02 |
| SW078         | 04 Nov 2020       | 0927_SW78_201104  | Normal       | 755594         | 0.18                                 | 0.010                     | 0.28                  | 0.010                                | 0.024                                  | 0.10                                  | 0.005                                  | <0.001                              | 0.009                         | 0.013                           | 0.024                          | 0.004                           | 0.001                         | 0.004                         | <0.001                            | <0.001                            |       |
|               | 17 Mar 2023       | 0927_SW078_230317 | Normal       | EM2305195      | 0.24                                 | 0.02                      | 0.41                  | 0.02                                 | <0.02                                  | 0.17                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.04                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               | 03 Aug 2023       | 0927_SW078_230803 | Normal       | EM2314151-AD   | 0.17                                 | 0.01                      | 0.30                  | <0.02                                | <0.02                                  | 0.13                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | 0.02                           | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
| SW083         | 27 Oct 2020       | 0927_SW83_201027  | Normal       | 753780         | 0.51                                 | 0.016                     | 0.602                 | 0.009                                | 0.009                                  | 0.092                                 | 0.005                                  | <0.001                              | 0.014                         | 0.014                           | 0.031                          | 0.006                           | 0.003                         | 0.007                         | <0.001                            | <0.001                            |       |
| SW085         | 30 Oct 2020       | 0927_SW85_201030  | Normal       | 754818         | 0.022                                | 0.006                     | 0.036                 | 0.003                                | 0.003                                  | 0.014                                 | <0.001                                 | <0.001                              | 0.009                         | 0.006                           | 0.010                          | 0.003                           | <0.001                        | 0.001                         | <0.001                            | <0.001                            |       |
|               | 21 Mar 2023       | 0927_SW085_230321 | Normal       | EM2305195      | 0.02                                 | <0.01                     | 0.06                  | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               | 03 Aug 2023       | 0927_SW085_230803 | Normal       | EM2314151-AD   | 0.04                                 | <0.01                     | 0.07                  | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
| SW086         | 29 Oct 2020       | 0927_SW86_201029  | Normal       | 754818         | 0.038                                | 0.007                     | 0.06                  | 0.004                                | 0.004                                  | 0.022                                 | 0.001                                  | <0.001                              | 0.012                         | 0.006                           | 0.010                          | 0.003                           | 0.001                         | 0.002                         | <0.001                            | <0.001                            |       |
|               | 21 Mar 2023       | 0927_SW086_230321 | Normal       | EM2305195      | 0.04                                 | <0.01                     | 0.08                  | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               | 03 Aug 2023       | 0927_SW086_230803 | Normal       | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                  | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               |                   | 0927_QC106_230803 | Field_D      | EM2314151-AD   | 0.02                                 | <0.01                     | 0.06                  | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               | 0927_QC206_230803 | Interlab_D        | 1016445      | 0.03           | <0.01                                | 0.06                      | <0.01                 | <0.01                                | 0.03                                   | <0.01                                 | <0.01                                  | <0.05                               | <0.01                         | 0.01                            | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |       |
| SW087         | 29 Oct 2020       | 0927_SW87_201029  | Normal       | 754818         | 0.16                                 | 0.008                     | 0.202                 | 0.004                                | 0.004                                  | 0.042                                 | 0.003                                  | <0.001                              | 0.016                         | 0.006                           | 0.012                          | 0.003                           | 0.002                         | 0.005                         | <0.001                            | <0.001                            |       |
|               | 17 Mar 2023       | 0927_SW087_230317 | Normal       | EM2307274      | 0.05                                 | <0.01                     | 0.09                  | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               | 03 Aug 2023       | 0927_SW087_230803 | Normal       | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                  | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               |                   | 0927_QC105_230803 | Field_D      | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                  | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               | 0927_QC205_230803 | Interlab_D        | 1016445      | 0.03           | <0.01                                | 0.06                      | <0.01                 | <0.01                                | 0.03                                   | <0.01                                 | <0.01                                  | <0.05                               | <0.01                         | 0.01                            | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |       |
| SW088         | 30 Oct 2020       | 0927_SW88_201030  | Normal       | 754818         | 0.033                                | 0.007                     | 0.058                 | 0.006                                | 0.004                                  | 0.025                                 | 0.002                                  | <0.001                              | 0.017                         | 0.008                           | 0.014                          | 0.003                           | <0.001                        | 0.001                         | <0.001                            | <0.001                            |       |
|               | 21 Mar 2023       | 0927_SW088_230321 | Normal       | EM2305195      | 0.04                                 | <0.01                     | 0.08                  | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               |                   | 0927_QC106_230321 | Field_D      | EM2305194      | 0.03                                 | <0.01                     | 0.07                  | <0.02                                | <0.02                                  | 0.04                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               |                   | 0927_QC206_230321 | Interlab_D   | 975318         | 0.08                                 | 0.02                      | 0.16                  | 0.01                                 | 0.01                                   | 0.08                                  | <0.01                                  | <0.01                               | <0.05                         | 0.03                            | 0.03                           | <0.01                           | <0.01                         | <0.01                         | <0.01                             | <0.01                             |       |
|               | 03 Aug 2023       | 0927_SW088_230803 | Normal       | EM2314151-AD   | 0.02                                 | <0.01                     | 0.05                  | <0.02                                | <0.02                                  | 0.03                                  | <0.02                                  | <0.02                               | <0.1                          | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             | <0.02                             |       |
|               | 0927_QC104_230803 | Field_D           | EM2314151-AD | 0.03           | <0.01                                | 0.06                      | <0.02                 | <0.02                                | 0.03                                   | <0.02                                 | <0.02                                  | <0.1                                | <0.02                         | <0.02                           | <0.02                          | <0.02                           | <0.02                         | <0.02                         | <0.02                             |                                   |       |
|               | 0927_QC204_230803 | Interlab_D        | 1016445      | 0.03           | <0.01                                | 0.06                      | <0.01                 | <0.01                                | 0.03                                   | <0.01                                 | <0.01                                  | <0.05                               | <0.01                         | 0.01                            | <0.01                          | <0.01                           | <0.01                         | <0.01                         | <0.01                             |                                   |       |

Notes  
Denotes first time detection above LOR in latest monitoring round  
Denotes new exceedance of human health drinking water screening criteria in latest monitoring round



|   |  |  |  |  | Perfluorocarbons                |                                      |                                    |   |   |  |   |  |  |   |                                       |                                       |   |             |   |
|---|--|--|--|--|---------------------------------|--------------------------------------|------------------------------------|---|---|--|---|--|--|---|---------------------------------------|---------------------------------------|---|-------------|---|
|   |  |  |  |  | Perfluorodecanoic acid (PFTeDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE) | N-Methyl perfluorooctane sulfonamide (MeFOSAA) | N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) | 4:2 Fluorotelomer sulfonic acid (4:2 FTS) | 6:2 Fluorotelomer Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |
|   |  |  |  |  | µg/L                            | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L   | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L        | µg/L  |
| LOR   |  |  |  |  | 0.0005                          | 0.0005                               | 0.0005                             | 0.001   | 0.001   | 0.001  | 0.001   | 0.0005   | 0.0005   | 0.001                                     | 0.001                                 | 0.001                                 | 0.001                                       | 0.0003      | 0.001                                       |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |  |  |  |  |                                 |                                      |                                    |   |   |  |   |  |  |   |                                       |                                       |   |             |   |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |  |  |  |  |                                 |                                      |                                    |   |   |  |   |  |  |   |                                       |                                       |   |             |   |

| Location Code     | Date              | Field ID          | Sample Type  | Lab Report No. | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.01  | <0.05  | <0.01  | <0.01  | <0.1  | 0.05  |
|-------------------|-------------------|-------------------|--------------|----------------|---------|---------|---------|--------|--------|--------|--------|---------|---------|--------|--------|--------|--------|-------|-------|
| SW005             | 20 Aug 2018       | 0927_SW05_180820  | Normal       | 613490         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.01  | <0.05  | <0.01  | <0.01  | <0.1  | 0.05  |
|                   | 03 Jun 2019       | 0927_SW05_190603  | Normal       | 662504         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.01  | <0.05  | <0.01  | <0.01  | <0.1  | <0.01 |
|                   | 02 Aug 2023       | 0927_SW005_230802 | Normal       | EM2314152-AC   | <0.02   | <0.05   | <0.02   | <0.05  | <0.05  | <0.05  | <0.05  | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05 | 0.12  |
| SW006             | 20 Aug 2018       | 0927_SW06_180820  | Normal       | 613490         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.01  | <0.05  | <0.01  | <0.01  | <0.1  | 0.01  |
|                   | 20 Mar 2023       | 0927_SW006_230320 | Normal       | EM2305194      | <0.02   | <0.05   | <0.02   | <0.05  | <0.05  | <0.05  | <0.05  | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05 | <0.05 |
|                   |                   | 0927_QC104_230320 | Field_D      | EM2305194      | <0.02   | <0.05   | <0.02   | <0.05  | <0.05  | <0.05  | <0.05  | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05 | 0.02  |
|                   |                   | 0927_QC204_230320 | Interlab_D   | 975318         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.05   | <0.01  | <0.05  | <0.01  | <0.01  | <0.1  | 0.01  |
| 01 Aug 2023       | 0927_SW006_230801 | Normal            | EM2314152-AC | <0.02          | <0.05   | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.02  | <0.05   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.01 |       |
| SW008             | 20 Aug 2018       | 0927_SW08_180820  | Normal       | 613490         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | <0.1   | 0.04  |       |
| SW012             | 21 Aug 2018       | 0927_SW12_180821  | Normal       | 613490         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | 0.36   | 0.28  |       |
|                   | 03 Jun 2019       | 0927_SW12_190603  | Normal       | 662504         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | 0.19   | 0.17  |       |
|                   | 09 Jul 2020       | 0927_SW12_200709  | Normal       | 731055         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.309  | 0.211 |       |
|                   | 05 Aug 2020       | 0927_SW12_200805  | Normal       | 736375         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.533  | 0.371 |       |
|                   | 04 Nov 2020       | 0927_SW12_201104  | Normal       | 755594         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.332  | 0.221 |       |
|                   | 21 Mar 2023       | 0927_SW012_230321 | Normal       | EM2305195      | <0.02   | <0.05   | <0.02   | <0.05  | <0.05  | <0.05  | <0.05  | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | 0.31  |       |
| SW013             | 21 Aug 2018       | 0927_SW13_180821  | Normal       | 613490         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | 0.15   | 0.13  |       |
|                   | 17 Mar 2023       | 0927_SW013_230317 | Normal       | EM2305195      | <0.02   | <0.05   | <0.02   | <0.05  | <0.05  | <0.05  | <0.05  | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | 0.29  |       |
|                   | 02 Aug 2023       | 0927_SW013_230802 | Normal       | EM2314151-AD   | <0.02   | <0.05   | <0.02   | <0.05  | <0.05  | <0.05  | <0.05  | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | 0.21  |       |
| SW015             | 21 Aug 2018       | 0927_SW15_180821  | Normal       | 613490         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | <0.1   | 0.01  |       |
|                   | 03 Jun 2019       | 0927_SW15_190603  | Normal       | 662504         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | <0.1   | <0.01 |       |
|                   | 09 Jul 2020       | 0927_SW15_200709  | Normal       | 731055         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.066  | 0.036 |       |
|                   |                   | 0927_QC102_200709 | Field_D      | 731055         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.065  | 0.035 |       |
|                   |                   | 0927_QC202_200709 | Interlab_D   | EM2012086      | <0.0008 | <0.0020 | <0.0008 | <0.002 | <0.002 | <0.002 | <0.002 | <0.0008 | <0.001  | <0.001 | <0.001 | <0.001 | 0.0811 |       |       |
|                   | 20 Mar 2023       | 0927_SW015_230320 | Normal       | EM2305195      | <0.02   | <0.05   | <0.02   | <0.05  | <0.05  | <0.05  | <0.05  | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | 0.02  |       |
| 03 Aug 2023       | 0927_SW015_230803 | Normal            | EM2314151-AD | <0.02          | <0.05   | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.02  | <0.05   | <0.05   | <0.05  | <0.05  | <0.05  | 0.06   |       |       |
| SW020             | 17 Jan 2019       | 0927_SW20_190117  | Normal       | 637379         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | 0.84   | 0.57  |       |
|                   | 03 Jun 2019       | SW20_190603       | Normal       | 662504         | <0.01   | <0.01   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | 0.26   | 0.21  |       |
|                   | 09 Jul 2020       | 0927_SW20_200709  | Normal       | 731055         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.423  | 0.288 |       |
|                   |                   | 0927_QC103_200709 | Field_D      | 731055         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.44   | 0.307 |       |
|                   |                   | 0927_QC203_200709 | Interlab_D   | EM2012086      | <0.0016 | <0.0040 | <0.0016 | <0.004 | <0.004 | <0.004 | <0.004 | <0.0016 | <0.0016 | <0.002 | 0.002  | <0.002 | <0.002 | 0.590 |       |
|                   | 05 Aug 2020       | 0927_SW20_200805  | Normal       | 736375         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | 0.014  | 0.002  | <0.001 | 0.305  | 0.198 |       |
|                   | 04 Nov 2020       | 0927_SW20_201104  | Normal       | 755594         | <0.001  | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.409  | 0.272 |       |
|                   |                   | 0927_QC101_201104 | Field_D      | 755594         | 0.003   | <0.001  | <0.005  | <0.005 | <0.005 | <0.005 | <0.005 | <0.005  | <0.001  | <0.005 | <0.001 | <0.001 | 0.005  | 0.433 | 0.262 |
|                   |                   | 0927_QC201_201104 | Interlab_D   | EB2030068      | <0.0005 | <0.0005 | <0.0005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.001 | <0.001 | <0.001 | 0.386 |       |
|                   | 21 Mar 2023       | 0927_SW020_230317 | Normal       | EM2305195      | <0.02   | <0.05   | <0.02   | <0.05  | <0.05  | <0.05  | <0.05  | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | 0.30  |       |
| 0927_QC105_230321 |                   | Field_D           | EM2305194    | <0.02          | <0.05   | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.02  | <0.05   | <0.05   | <0.05  | <0.05  | <0.05  | 0.35   |       |       |
| 0927_QC205_230321 |                   | Interlab_D        | 975318       | <0.01          | <0.01   | <0.05   | <0.05   | <0.05  | <0.05  | <0.05  | <0.05  | <0.05   | <0.01   | <0.05  | <0.01  | <0.01  | 0.69   | 0.49  |       |
| 02 Aug 2023       | 0927_SW020_230802 | Normal            | EM2314151-AD | <0.02          | <0.05   | <0.02   | <0.05   | <0.05  | <0.05  | <0.05  | <0.02  | <0.05   | <0.05   | <0.05  | <0.05  | <0.05  | 0.19   |       |       |

|   | Perfluorocarbons                   |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |       | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |       |        |       |  |
|---|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------|-------------|---|-------|--------|-------|--|
|   | Perfluorotridecanoic acid (PFTrDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) |       |             |   |       |        |       |  |
|   | µg/L                               | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L  | µg/L        | µg/L  | µg/L  | µg/L   | µg/L  |  |
| LOR   | 0.0005                             | 0.0005                               | 0.0005                             | 0.001   | 0.001   | 0.001  | 0.001   | 0.0005  | 0.0005   | 0.001                                     | 0.0005                                | 0.0005                                | 0.001                                       | 0.001 | 0.001       | 0.001                                       | 0.001 | 0.0003 | 0.001 |  |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |       |             |   |       |        |       |  |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |       |             |   |       |        |       |  |

| Location Code     | Date              | Field ID             | Sample Type  | Lab Report No. | Perfluorotridecanoic acid (PFTrDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |
|-------------------|-------------------|----------------------|--------------|----------------|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|------|
| SW024             | 17 Jan 2019       | 0927_SW24_190117     | Normal       | 637379         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.85        | 0.65  |      |
|                   | 21 Mar 2023       | 0927_SW024_230317    | Normal       | EM2307274      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.26  |      |
|                   | 03 Aug 2023       | 0927_SW024_230803    | Normal       | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.15  |      |
| SW027             | 03 Jun 2019       | SW27_190603          | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.4         | 0.33  |      |
|                   | 20 Mar 2023       | 0927_SW027_230320    | Normal       | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.60  |      |
|                   | 02 Aug 2023       | 0927_SW027_230802    | Normal       | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.20  |      |
| SW030             | 17 Jan 2019       | 0927_SW30_190117     | Normal       | 637379         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.19        | 0.1   |      |
|                   | 20 Mar 2023       | 0927_SW030_230320    | Normal       | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.14  |      |
|                   | 02 Aug 2023       | 0927_SW030_230802    | Normal       | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.01  |      |
| SW034             | 03 Jun 2019       | 0927_SW34_190603     | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.49        | 1.32  |      |
|                   | 20 Mar 2023       | 0927_SW034_230320    | Normal       | EM2305194      | <0.02                              | <0.05                                | 0.09                               | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 74.5  |      |
|                   | 02 Aug 2023       | 0927_SW034_230802    | Normal       | EM2314152-AC   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 13.5  |      |
| SW035             | 06 Feb 2019       | 0927_SW35_190206     | Normal       | 639585         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 3.22        | 2.41  |      |
|                   | 27 Oct 2020       | 0927_SW35_201027     | Normal       | 753780         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 2.281       | 2.134                                       |      |
| SW036             | 06 Feb 2019       | 0927_SW36_190206     | Normal       | 639585         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.21        | 0.97  |      |
|                   |                   | 0927_QC125_190206_SW | Field_D      | 639585         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.12        | 0.89  |      |
|                   |                   | 0927_QC225_190206_SW | Interlab_D   | EM1901728      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.28  |      |
|                   | 27 Oct 2020       | 0927_SW36_201027     | Normal       | 753780         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.28        | 0.216                                       |      |
|                   |                   | 0927_QC102_201027    | Field_D      | 753780         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.383       | 0.314                                       |      |
| 0927_QC202_201027 | Interlab_D        | EB2028871            | <0.0008      | <0.0020        | <0.0008                            | <0.002                               | <0.002                             | <0.002  | <0.002  | <0.002                                       | <0.0008   | <0.0008   | <0.001   | <0.001                                    | <0.001                                | <0.001                                | 0.373                                       |             |   |      |
| SW037             | 06 Feb 2019       | 0927_SW37_190206     | Normal       | 639585         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.11        | 0.07  |      |
| SW038             | 06 Feb 2019       | 0927_SW38_190206     | Normal       | 639585         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.29        | 1.02  |      |
| SW039             | 06 Feb 2019       | 0927_SW39_190206     | Normal       | 639585         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 1.69        | 1.34  |      |
|                   | 27 Oct 2020       | 0927_SW39_201027     | Normal       | 753780         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.406       | 0.321                                       |      |
| SW041             | 03 Jun 2019       | 0927_SW41_190603     | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.18        | 0.18  |      |
|                   | 09 Jul 2020       | 0927_SW41_200709     | Normal       | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.043       | 0.02  |      |
|                   | 05 Aug 2020       | 0927_SW41_200805     | Normal       | 736375         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.044       | 0.019                                       |      |
|                   | 17 Mar 2023       | 0927_SW041_230317    | Normal       | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.28  |      |
| 02 Aug 2023       | 0927_SW041_230802 | Normal               | EM2314151-AD | <0.02          | <0.05                              | <0.02                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.02   | <0.02   | <0.05  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | 0.27        |   |      |
| SW042             | 03 Jun 2019       | 0927_SW42_190603     | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.26        | 0.23  |      |
|                   | 09 Jul 2020       | 0927_SW42_200709     | Normal       | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.494       | 0.411                                       |      |
|                   | 05 Aug 2020       | 0927_SW42_200805     | Normal       | 736375         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.304       | 0.234                                       |      |
|                   | 17 Oct 2023       | SW042_20231017       | Normal       | EM2318509      | <0.02                              | <0.02                                | <0.05                              | <0.02   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.02                                     | <0.02                                 | <0.05                                 | <0.05                                       | <0.05       | <0.05                                       | 0.28 |
|                   |                   | QC100_20231017       | Field_D      | EM2318509      | <0.02                              | <0.02                                | <0.05                              | <0.02   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.02                                     | <0.02                                 | <0.05                                 | <0.05                                       | <0.05       | <0.05                                       | 0.27 |
| QC200_20231017    | Interlab_D        | 1036324              | <0.01        | <0.01          | <0.01                              | <0.05                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.26        |   |      |
| SW043             | 03 Jun 2019       | 0927_SW43_190603     | Normal       | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.15        | 0.15  |      |
|                   |                   | 0927_QC127_190603    | Field_D      | 662504         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | 0.15        | 0.15  |      |
|                   |                   | 0927_QC227_190603    | Interlab_D   | EB1916408      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.15  |      |
|                   | 02 Aug 2023       | 0927_SW043_230802    | Normal       | EM2314152-AC   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.14  |      |

|   | Perfluorocarbons                   |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |       | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |       |        |       |
|---|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------|-------------|---|-------|--------|-------|
|   | Perfluorotridecanoic acid (PFTrDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) |       |             |   |       |        |       |
|   | µg/L                               | µg/L                                 | µg/L                               | µg/L  | µg/L  | µg/L   | µg/L  | µg/L  | µg/L   | µg/L                                      | µg/L                                  | µg/L                                  | µg/L  | µg/L  | µg/L        | µg/L  | µg/L  | µg/L   |       |
| LOR   | 0.0005                             | 0.0005                               | 0.0005                             | 0.001   | 0.001   | 0.001  | 0.001   | 0.001   | 0.0005   | 0.0005                                    | 0.001                                 | 0.0005                                | 0.001                                       | 0.001 | 0.001       | 0.001                                       | 0.001 | 0.0003 | 0.001 |
| PFAS NEMP 2.0 Table 1 Health Recreational Water |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |       |             |   |       |        |       |
| PFAS NEMP 2.0 Table 5 Interim marine 95%        |                                    |                                      |                                    |   |   |  |   |   |  |   |                                       |                                       |   |       |             |   |       |        |       |

| Location Code | Date        | Field ID          | Sample Type | Lab Report No. | Perfluorotridecanoic acid (PFTrDA) | Perfluorotetradecanoic acid (PFTeDA) | Perfluorooctane sulfonamide (FOSA) | N-Methyl perfluorooctane sulfonamide (MeFOSA) | 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | N-Ethyl perfluorooctane sulfonamide (EtFOSA) | 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 Sulfonate (6:2 FTS) | 8:2 Fluorotelomer sulfonate (8:2 FTS) | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | Sum of PFAS | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* |      |
|---------------|-------------|-------------------|-------------|----------------|------------------------------------|--------------------------------------|------------------------------------|---|---|--|---|---|--|---|---------------------------------------|---------------------------------------|---|-------------|---|------|
| SW045         | 08 Jul 2020 | 0927_SW45_200708  | Normal      | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.042       | 0.016                                       |      |
|               | 05 Aug 2020 | 0927_SW45_200805  | Normal      | 736375         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.05        | 0.019                                       |      |
|               | 20 Mar 2023 | 0927_SW045_230320 | Normal      | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.02  |      |
|               | 02 Aug 2023 | 0927_SW045_230802 | Normal      | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.02  |      |
| SW049         | 09 Jul 2020 | 0927_SW49_200709  | Normal      | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.457       | 0.328                                       |      |
|               | 05 Aug 2020 | 0927_SW49_200805  | Normal      | 736375         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.556       | 0.402                                       |      |
|               | 04 Nov 2020 | 0927_SW49_201104  | Normal      | 755594         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.346       | 0.247                                       |      |
|               | 17 Mar 2023 | 0927_SW049_230317 | Normal      | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.31  |      |
| SW052         | 08 Jul 2020 | 0927_SW52_200708  | Normal      | 731055         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | 0.015   | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.076       | 0.033                                       |      |
|               | 17 Mar 2023 | 0927_SW052_230317 | Normal      | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.04  |      |
|               | 03 Aug 2023 | 0927_SW052_230803 | Normal      | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
| SW073         | 02 Nov 2020 | 0927_SW73_201102  | Normal      | 755594         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.308       | 0.199                                       |      |
|               | 17 Mar 2023 | 0927_SW073_230317 | Normal      | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 1.71  |      |
|               | 02 Aug 2023 | 0927_SW073_230802 | Normal      | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.17  |      |
| SW078         | 04 Nov 2020 | 0927_SW78_201104  | Normal      | 755594         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.39        | 0.29  |      |
|               | 17 Mar 2023 | 0927_SW078_230317 | Normal      | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.49  |      |
|               | 03 Aug 2023 | 0927_SW078_230803 | Normal      | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.33  |      |
| SW083         | 27 Oct 2020 | 0927_SW83_201027  | Normal      | 753780         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.718       | 0.618                                       |      |
| SW085         | 30 Oct 2020 | 0927_SW85_201030  | Normal      | 754818         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.078       | 0.042                                       |      |
|               | 21 Mar 2023 | 0927_SW085_230321 | Normal      | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.06  |      |
|               | 03 Aug 2023 | 0927_SW085_230803 | Normal      | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.07  |      |
| SW086         | 29 Oct 2020 | 0927_SW86_201029  | Normal      | 754818         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.111       | 0.067                                       |      |
|               | 21 Mar 2023 | 0927_SW086_230321 | Normal      | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.08  |      |
|               | 03 Aug 2023 | 0927_SW086_230803 | Normal      | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
|               |             | 0927_QC106_230803 | Field_D     | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.06  |      |
| SW087         | 29 Oct 2020 | 0927_SW87_201029  | Normal      | 754818         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.267       | 0.21  |      |
|               | 17 Mar 2023 | 0927_SW087_230317 | Normal      | EM2307274      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.09  |      |
|               | 03 Aug 2023 | 0927_SW087_230803 | Normal      | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
|               |             | 0927_QC105_230803 | Field_D     | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
| SW088         | 30 Oct 2020 | 0927_SW88_201030  | Normal      | 754818         | <0.001                             | <0.001                               | <0.005                             | <0.005  | <0.005  | <0.005                                       | <0.005  | <0.005  | <0.005   | <0.001                                    | <0.005                                | <0.001                                | <0.001                                      | 0.12        | 0.065                                       |      |
|               |             | 0927_SW088_230321 | Normal      | EM2305195      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.08  |      |
|               | 21 Mar 2023 | 0927_QC106_230321 | Field_D     | EM2305194      | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.07  |      |
|               |             | 0927_QC206_230321 | Interlab_D  | 975318         | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.05                                     | <0.01                                 | <0.05                                 | <0.01                                       | <0.01       | 0.26  | 0.18 |
|               | 03 Aug 2023 | 0927_SW088_230803 | Normal      | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.05  |      |
|               |             | 0927_QC104_230803 | Field_D     | EM2314151-AD   | <0.02                              | <0.05                                | <0.02                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.02   | <0.02  | <0.05                                     | <0.05                                 | <0.05                                 | <0.05                                       | <0.05       | 0.06  |      |
|               |             | 0927_QC204_230803 | Interlab_D  | 1016445        | <0.01                              | <0.01                                | <0.05                              | <0.05   | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  | <0.01                                     | <0.05                                 | <0.01                                 | <0.01                                       | <0.1        | 0.06  |      |

Notes

- Denotes first time detection above LOR in latest monitoring round
- Denotes new exceedance of human health drinking water screening criteria in latest monitoring round

|   | Unit | LOR  | 01 Aug 2023       |                   |                   | 01 Aug 2023       |                   |     |
|---|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|
|   |      |      | Field ID          | 0927_MW208_230801 | 0927_QC101_230801 | 0927_MW208_230801 | 0927_QC201_230801 |     |
|   |      |      | Matrix Type       | Water             | Water             | Water             | Water             |     |
|   |      |      | Lab Report Number | EM2314161         | EM2314161         | EM2314161         | 1014137           | RPD |
| <b>Perfluorocarbons</b>                                       |      |      |                   |                   |                   |                   |                   |     |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.01 | 61.8              | 43.6              | 35                | 61.8              | 54                | 13  |
| Perfluorooctanoate (PFOA)                                     | µg/L | 0.01 | 1.14              | 0.85              | 29                | 1.14              | 1.2               | 5   |
| Sum of PFHxS and PFOS   | µg/L | 0.01 | 81.4              | 59.3              | 31                | 81.4              | 71                | 14  |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 0.01 | 2.37              | 1.82              | 26                | 2.37              | 1.9               | 22  |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | 0.01 | 2.84              | 2.24              | 24                | 2.84              | 2.3               | 21  |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.01 | 19.6              | 15.7              | 22                | 19.6              | 17                | 14  |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | 0.01 | 1.61              | 1.26              | 24                | 1.61              | 1.1               | 38  |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | 0.01 | 0.11              | 0.05              | 75                | 0.11              | <0.1              | 10  |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | 0.05 | 0.4               | 0.2               | 67                | 0.4               | 0.21              | 62  |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | 0.01 | 0.87              | 0.62              | 34                | 0.87              | 0.84              | 4   |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 0.01 | 4.16              | 3.20              | 26                | 4.16              | 2.9               | 36  |
| Perfluoropropanesulfonic acid (PFPrS)                         | UG/L | 0.01 |                   |                   |                   |                   | 0.84              |     |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | 0.01 | 0.56              | 0.41              | 31                | 0.56              | 0.55              | 2   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | 0.01 | <0.02             | <0.03             | 0                 | <0.02             | 0.01              | 0   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | 0.01 | <0.02             | <0.03             | 0                 | <0.02             | <0.01             | 0   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | 0.01 | <0.02             | <0.03             | 0                 | <0.02             | <0.01             | 0   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | 0.01 | <0.02             | <0.03             | 0                 | <0.02             | <0.01             | 0   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | 0.01 | <0.02             | <0.03             | 0                 | <0.02             | <0.01             | 0   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | 0.01 | <0.05             | <0.08             | 0                 | <0.05             | <0.01             | 0   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | 0.02 | 0.24              | 0.18              | 29                | 0.24              | 0.21              | 13  |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | 0.05 | <0.05             | <0.08             | 0                 | <0.05             | <0.05             | 0   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | ug/L | 0.05 | <0.05             | <0.08             | 0                 | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | 0.05 | <0.05             | <0.08             | 0                 | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | 0.05 | <0.05             | <0.08             | 0                 | <0.05             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | 0.02 | <0.02             | <0.03             | 0                 | <0.02             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | 0.02 | <0.02             | <0.03             | 0                 | <0.02             | <0.05             | 0   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | 0.01 | <0.05             | <0.05             | 0                 | <0.05             | <0.01             | 0   |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L | 0.05 | <0.05             | <0.05             | 0                 | <0.05             | <0.05             | 0   |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L | 0.01 | <0.05             | <0.05             | 0                 | <0.05             | <0.01             | 0   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | 0.01 | <0.05             | <0.05             | 0                 | <0.05             | <0.01             | 0   |
| Sum of PFAS   | µg/L | 0.01 | 95.7              | 70.1              | 31                | 95.7              | 83.06             | 14  |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | UG/L | 0.01 |                   |                   |                   |                   | 55.2              |     |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | ug/L | 0.01 |                   |                   |                   |                   | 72.2              |     |
| <b>NA</b>   |      |      |                   |                   |                   |                   |                   |     |
| Perfluorononane sulfonate (PFNS)                              | µg/L | 0.01 |                   |                   |                   |                   | <0.1              |     |
| Sum of WA DWER PFAS (n=10)*                                   | UG/L | 0.01 | 90.9              | 66.4              | 31                | 90.9              | 78.6              | 15  |

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

\*\*Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each LOR multiplier range are: 81 (1 - 10 x LOR); 50 (10 - 30 x LOR); 30 (> 30 x LOR) )

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

|   | Unit | 01 Aug 2023       |                   |     | 01 Aug 2023       |                   |     |
|---|------|-------------------|-------------------|-----|-------------------|-------------------|-----|
|   |      | 0927_MW118_230801 | 0927_QC102_230801 | RPD | 0927_MW118_230801 | 0927_QC202_230801 | RPD |
|   |      | Water             | Water             |     | Water             | Water             |     |
|   |      | EM2314161         | EM2314161         |     | EM2314161         | 1014137           |     |
| <b>Perfluorocarbons</b>                                       |      |                   |                   |     |                   |                   |     |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 25.7              | 21.5              | 18  | 25.7              | 28                | 9   |
| Perfluorooctanoate (PFOA)                                     | µg/L | 1.30              | 1.16              | 11  | 1.30              | 1.0               | 26  |
| Sum of PFHxS and PFOS   | µg/L | 58.0              | 46.6              | 22  | 58.0              | 57                | 2   |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 3.61              | 3.35              | 7   | 3.61              | 3.2               | 12  |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | 4.62              | 3.75              | 21  | 4.62              | 4.2               | 10  |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 32.3              | 25.1              | 25  | 32.3              | 29                | 11  |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | 1.42              | 1.13              | 23  | 1.42              | 1.2               | 17  |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.06             | 0   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | 0.4               | 0.3               | 29  | 0.4               | 0.30              | 29  |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | 1.42              | 1.15              | 21  | 1.42              | 0.99              | 36  |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 7.33              | 5.86              | 22  | 7.33              | 5.5               | 29  |
| Perfluoropropanesulfonic acid (PFPrS)                         | UG/L |                   |                   |     |                   | 1.2               |     |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | 0.72              | 0.60              | 18  | 0.72              | 0.69              | 4   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | 0.01              | 0   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | 0.03              | 40  | <0.02             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | ug/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Sum of PFAS   | µg/L | 78.8              | 63.9              | 21  | 78.8              | 75.29             | 5   |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | UG/L |                   |                   |     |                   | 29                |     |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | ug/L |                   |                   |     |                   | 58                |     |
| <b>NA</b>   |      |                   |                   |     |                   |                   |     |
| Perfluorononane sulfonate (PFNS)                              | µg/L |                   |                   |     |                   | <0.06             |     |
| Sum of WA DWER PFAS (n=10)*                                   | UG/L | 72.8              | 59.0              | 21  | 72.8              | 68.68             | 6   |

\*RPDs have only been considered where a concentration is gr

\*\*Elevated RPDs are highlighted as per QAQC Profile settings

\*\*\*Interlab Duplicates are matched on a per compound basis

|   | Unit | 01 Aug 2023       |                   |     | 01 Aug 2023       |                   |     |
|---|------|-------------------|-------------------|-----|-------------------|-------------------|-----|
|   |      | 0927_MW207_230801 | 0927_QC100_230801 | RPD | 0927_MW207_230801 | 0927_QC200_230801 | RPD |
|   |      | Water             | Water             |     | Water             | Water             |     |
|   |      | EM2314161         | EM2314161         |     | EM2314161         | 1014137           |     |
| <b>Perfluorocarbons</b>                                       |      |                   |                   |     |                   |                   |     |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 12.0              | 11.3              | 6   | 12.0              | 9.2               | 26  |
| Perfluorooctanoate (PFOA)                                     | µg/L | 0.40              | 0.39              | 3   | 0.40              | 0.40              | 0   |
| Sum of PFHxS and PFOS   | µg/L | 20.6              | 19.7              | 4   | 20.6              | 16.3              | 23  |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 0.66              | 0.68              | 3   | 0.66              | 0.71              | 7   |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | 0.99              | 1.01              | 2   | 0.99              | 0.81              | 20  |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 8.60              | 8.42              | 2   | 8.60              | 7.1               | 19  |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | 0.58              | 0.58              | 0   | 0.58              | 0.45              | 25  |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | 0.1               | <0.1              | 0   | 0.1               | 0.19              | 62  |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | 0.29              | 0.24              | 19  | 0.29              | 0.25              | 15  |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 1.46              | 1.28              | 13  | 1.46              | 1.0               | 37  |
| Perfluoropropanesulfonic acid (PFPrS)                         | UG/L |                   |                   |     |                   | 0.34              |     |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | 0.21              | 0.21              | 0   | 0.21              | 0.18              | 15  |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | ug/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Sum of PFAS   | µg/L | 25.3              | 24.1              | 5   | 25.3              | 20.63             | 20  |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | UG/L |                   |                   |     |                   | 9.6               |     |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | ug/L |                   |                   |     |                   | 16.7              |     |
| <b>NA</b>   |      |                   |                   |     |                   |                   |     |
| Perfluorononane sulfonate (PFNS)                              | µg/L |                   |                   |     |                   | <0.01             |     |
| Sum of WA DWER PFAS (n=10)*                                   | UG/L | 23.7              | 22.5              | 5   | 23.7              | 19.03             | 22  |

\*RPDs have only been considered where a concentration is gr

\*\*Elevated RPDs are highlighted as per QAQC Profile settings

\*\*\*Interlab Duplicates are matched on a per compound basis

|   | Unit | 01 Aug 2023       |                   |     | 01 Aug 2023       |                   |     |
|---|------|-------------------|-------------------|-----|-------------------|-------------------|-----|
|   |      | 0927_MW211_230801 | 0927_QC103_230801 | RPD | 0927_MW211_230801 | 0927_QC203_230801 | RPD |
|   |      | Water             | Water             |     | Water             | Water             |     |
|   |      | EM2314161         | EM2314161         |     | EM2314161         | 1014137           |     |
| <b>Perfluorocarbons</b>                                       |      |                   |                   |     |                   |                   |     |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.10              | 0.08              | 22  | 0.10              | 0.09              | 11  |
| Perfluorooctanoate (PFOA)                                     | µg/L | 0.01              | 0.01              | 0   | 0.01              | 0.02              | 67  |
| Sum of PFHxS and PFOS   | µg/L | 0.56              | 0.52              | 7   | 0.56              | 0.58              | 4   |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | 0.07              | 0.07              | 0   | 0.07              | 0.07              | 0   |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | 0.07              | 0.07              | 0   | 0.07              | 0.09              | 25  |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.46              | 0.44              | 4   | 0.46              | 0.49              | 6   |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | <0.02             | <0.02             | 0   | <0.02             | 0.01              | 0   |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | <0.1              | <0.1              | 0   | <0.1              | <0.05             | 0   |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | 0.02              | <0.02             | 0   | 0.02              | 0.02              | 0   |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | 0.08              | 0.07              | 13  | 0.08              | 0.06              | 29  |
| Perfluoropropanesulfonic acid (PFPrS)                         | UG/L |                   |                   |     |                   | 0.02              |     |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | ug/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Sum of PFAS   | µg/L | 0.81              | 0.74              | 9   | 0.81              | 0.87              | 7   |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | UG/L |                   |                   |     |                   | 0.11              |     |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | ug/L |                   |                   |     |                   | 0.6               |     |
| <b>NA</b>   |      |                   |                   |     |                   |                   |     |
| Perfluorononane sulfonate (PFNS)                              | µg/L |                   |                   |     |                   | <0.01             |     |
| Sum of WA DWER PFAS (n=10)*                                   | UG/L | 0.74              | 0.67              | 10  | 0.74              | 0.75              | 1   |

\*RPDs have only been considered where a concentration is gr

\*\*Elevated RPDs are highlighted as per QAQC Profile settings

\*\*\*Interlab Duplicates are matched on a per compound basis

|   | Unit | 03 Aug 2023       |                   |     | 03 Aug 2023       |                   |     |
|---|------|-------------------|-------------------|-----|-------------------|-------------------|-----|
|   |      | 0927_SW086_230803 | 0927_QC106_230803 | RPD | 0927_SW086_230803 | 0927_QC206_230803 | RPD |
|   |      | Water             | Water             |     | Water             | Water             |     |
|   |      | EM2314151-AD      | EM2314151-AD      |     | EM2314151-AD      | 1016445           |     |
| <b>Perfluorocarbons</b>                                       |      |                   |                   |     |                   |                   |     |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.02              | 0.02              | 0   | 0.02              | 0.03              | 40  |
| Perfluorooctanoate (PFOA)                                     | µg/L | <0.01             | <0.01             | 0   | <0.01             | <0.01             | 0   |
| Sum of PFHxS and PFOS   | µg/L | 0.05              | 0.06              | 18  | 0.05              | 0.06              | 18  |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.03              | 0.04              | 29  | 0.03              | 0.03              | 0   |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | <0.1              | <0.1              | 0   | <0.1              | <0.05             | 0   |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | <0.02             | <0.02             | 0   | <0.02             | 0.01              | 0   |
| Perfluoropropanesulfonic acid (PFPrS)                         | UG/L |                   |                   |     |                   | <0.01             |     |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | ug/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Sum of PFAS   | µg/L | 0.05              | 0.06              | 18  | 0.05              | <0.1              | 0   |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | UG/L |                   |                   |     |                   | 0.03              |     |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | ug/L |                   |                   |     |                   | 0.06              |     |
| <b>NA</b>   |      |                   |                   |     |                   |                   |     |
| Perfluorononane sulfonate (PFNS)                              | µg/L |                   |                   |     |                   | <0.01             |     |
| Sum of WA DWER PFAS (n=10)*                                   | UG/L | 0.05              | 0.06              | 18  | 0.05              | 0.07              | 33  |

\*RPDs have only been considered where a concentration is gr

\*\*Elevated RPDs are highlighted as per QAQC Profile settings

\*\*\*Interlab Duplicates are matched on a per compound basis



|   | Unit | 03 Aug 2023       |                   |     | 03 Aug 2023       |                   |     |
|---|------|-------------------|-------------------|-----|-------------------|-------------------|-----|
|   |      | 0927_SW088_230803 | 0927_QC104_230803 | RPD | 0927_SW088_230803 | 0927_QC204_230803 | RPD |
|   |      | Water             | Water             |     | Water             | Water             |     |
|   |      | EM2314151-AD      | EM2314151-AD      |     | EM2314151-AD      | 1016445           |     |
| <b>Perfluorocarbons</b>                                       |      |                   |                   |     |                   |                   |     |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.02              | 0.03              | 40  | 0.02              | 0.03              | 40  |
| Perfluorooctanoate (PFOA)                                     | µg/L | <0.01             | <0.01             | 0   | <0.01             | <0.01             | 0   |
| Sum of PFHxS and PFOS   | µg/L | 0.05              | 0.06              | 18  | 0.05              | 0.06              | 18  |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.03              | 0.03              | 0   | 0.03              | 0.03              | 0   |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | <0.1              | <0.1              | 0   | <0.1              | <0.05             | 0   |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | <0.02             | <0.02             | 0   | <0.02             | 0.01              | 0   |
| Perfluoropropanesulfonic acid (PFPrS)                         | UG/L |                   |                   |     |                   | <0.01             |     |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | ug/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   |
| Sum of PFAS   | µg/L | 0.05              | 0.06              | 18  | 0.05              | <0.1              | 0   |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | UG/L |                   |                   |     |                   | 0.03              |     |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | ug/L |                   |                   |     |                   | 0.06              |     |
| <b>NA</b>   |      |                   |                   |     |                   |                   |     |
| Perfluorononane sulfonate (PFNS)                              | µg/L |                   |                   |     |                   | <0.01             |     |
| Sum of WA DWER PFAS (n=10)*                                   | UG/L | 0.05              | 0.06              | 18  | 0.05              | 0.07              | 33  |

\*RPDs have only been considered where a concentration is gr

\*\*Elevated RPDs are highlighted as per QAQC Profile settings

\*\*\*Interlab Duplicates are matched on a per compound basis

|   | Unit | 03 Aug 2023       |                   | RPD | 03 Aug 2023       |                   | RPD | 17 Oct 2023    |                | RPD | 17 Oct 2023    |                | RPD |
|---|------|-------------------|-------------------|-----|-------------------|-------------------|-----|----------------|----------------|-----|----------------|----------------|-----|
|   |      | 0927_SW087_230803 | 0927_QC105_230803 |     | 0927_SW087_230803 | 0927_QC205_230803 |     | SW042_20231017 | QC100_20231017 |     | SW042_20231017 | QC200_20231017 |     |
|   |      | Water             | Water             |     | Water             | Water             |     | Water          | Water          |     | Water          | Water          |     |
|   |      | EM2314151-AD      | EM2314151-AD      |     | EM2314151-AD      | 1016445           |     | EM2318509      | EM2318509      |     | EM2318509      | 1036324        |     |
| <b>Perfluorocarbons</b>                                       |      |                   |                   |     |                   |                   |     |                |                |     |                |                |     |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L | 0.02              | 0.02              | 0   | 0.02              | 0.03              | 40  | 0.18           | 0.17           | 6   | 0.18           | 0.16           | 12  |
| Perfluorooctanoate (PFOA)                                     | µg/L | <0.01             | <0.01             | 0   | <0.01             | <0.01             | 0   | 0.01           | 0.01           | 0   | 0.01           | 0.01           | 0   |
| Sum of PFHxS and PFOS   | µg/L | 0.05              | 0.05              | 0   | 0.05              | 0.06              | 18  | 0.25           | 0.24           | 4   | 0.25           | 0.22           | 13  |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L | 0.03              | 0.03              | 0   | 0.03              | 0.03              | 0   | 0.07           | 0.07           | 0   | 0.07           | 0.06           | 15  |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluorobutanoic acid (PFBA)                                 | µg/L | <0.1              | <0.1              | 0   | <0.1              | <0.05             | 0   | <0.1           | <0.1           | 0   | <0.1           | <0.05          | 0   |
| Perfluoropentanoic acid (PFPeA)                               | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | 0.01           | 0   |
| Perfluorohexanoic acid (PFHxA)                                | µg/L | <0.02             | <0.02             | 0   | <0.02             | 0.01              | 0   | 0.02           | 0.02           | 0   | 0.02           | 0.02           | 0   |
| Perfluoropropanesulfonic acid (PFPrS)                         | UG/L |                   |                   |     |                   | <0.01             |     |                |                |     |                | <0.01          |     |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluorononanoic acid (PFNA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluorodecanoic acid (PFDA)                                 | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.01             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.01          | 0   |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.01          | 0   |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.05          | 0   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.05          | 0   |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | ug/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.05          | 0   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.05          | 0   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.05          | 0   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.05          | 0   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L | <0.02             | <0.02             | 0   | <0.02             | <0.05             | 0   | <0.02          | <0.02          | 0   | <0.02          | <0.05          | 0   |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.01          | 0   |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.05             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.05          | 0   |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.01          | 0   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | µg/L | <0.05             | <0.05             | 0   | <0.05             | <0.01             | 0   | <0.05          | <0.05          | 0   | <0.05          | <0.01          | 0   |
| Sum of PFAS   | µg/L | 0.05              | 0.05              | 0   | 0.05              | <0.1              | 0   | 0.28           | 0.27           | 4   | 0.28           | 0.26           | 7   |
| Sum of US EPA PFAS (PFOS + PFOA)*                             | UG/L |                   |                   |     |                   | 0.03              |     |                |                |     |                | 0.17           |     |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                   | ug/L |                   |                   |     |                   | 0.06              |     |                |                |     |                | 0.23           |     |
| <b>NA</b>   |      |                   |                   |     |                   |                   |     |                |                |     |                |                |     |
| Perfluorononane sulfonate (PFNS)                              | µg/L |                   |                   |     |                   | <0.01             |     |                |                |     |                | <0.01          |     |
| Sum of WA DWER PFAS (n=10)*                                   | UG/L | 0.05              | 0.05              | 0   | 0.05              | 0.07              | 33  | 0.28           | 0.27           | 4   | 0.28           | 0.26           | 7   |

\*RPDs have only been considered where a concentration is gr

\*\*Elevated RPDs are highlighted as per QAQC Profile settings

\*\*\*Interlab Duplicates are matched on a per compound basis

| Date  | 01 Aug 2023       |                   | 02 Aug 2023       |                   | 03 Aug 2023       |                   |                     | 17 Oct 2023         |       |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------|---------------------|-------|
|   | Field ID          | 0927_QC301_230801 | 0927_QC303_230802 | 0927_QC305_230803 | 0927_QC500_230803 | 0927_QC501_230803 | 0927_QC300_20231017 | 0927_QC500_20231017 |       |
|   | Sample Type       | Rinsate           | Rinsate           | Rinsate           | Trip_B            | Trip_B            | Rinsate             | Trip_B              |       |
|   | Lab Report Number | EM2314161         | EM2314161         | EM2314161         | EM2314161         | EM2314161         | EM2318509           | EM2318509           |       |
|   | Unit              | LOR               |                   |                   |                   |                   |                     |                     |       |
| <b>Perfluorocarbons</b>                                       |                   |                   |                   |                   |                   |                   |                     |                     |       |
| Perfluorooctane sulfonic acid (PFOS)                          | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01               | <0.01               | <0.01 |
| Perfluorooctanoate (PFOA)                                     | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01               | <0.01               | <0.01 |
| Sum of PFHxS and PFOS   | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01               | <0.01               | <0.01 |
| Perfluorobutane sulfonic acid (PFBS)                          | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluoropentane sulfonic acid (PFPeS)                        | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorohexane sulfonic acid (PFHxS)                         | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01               | <0.01               | <0.01 |
| Perfluoroheptane sulfonic acid (PFHpS)                        | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorodecanesulfonic acid (PFDS)                           | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorobutanoic acid (PFBA)                                 | µg/L              | 0.1               | <0.1              | <0.1              | <0.1              | <0.1              | <0.1                | <0.1                | <0.1  |
| Perfluoropentanoic acid (PFPeA)                               | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorohexanoic acid (PFHxA)                                | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluoroheptanoic acid (PFHpA)                               | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorononanoic acid (PFNA)                                 | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorodecanoic acid (PFDA)                                 | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluoroundecanoic acid (PFUnDA)                             | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorododecanoic acid (PFDoDA)                             | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorotridecanoic acid (PFTrDA)                            | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| Perfluorotetradecanoic acid (PFTeDA)                          | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05               | <0.05               | <0.05 |
| Perfluorooctane sulfonamide (FOSA)                            | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)                 | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05               | <0.05               | <0.05 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) | ug/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05               | <0.05               | <0.05 |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)                  | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05               | <0.05               | <0.05 |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)           | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05               | <0.05               | <0.05 |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)     | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)      | µg/L              | 0.02              | <0.02             | <0.02             | <0.02             | <0.02             | <0.02               | <0.02               | <0.02 |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                     | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05               | <0.05               | <0.05 |
| 6:2 Fluorotelomer Sulfonate (6:2 FtS)                         | µg/L              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05               | <0.05               | <0.05 |
| 8:2 Fluorotelomer sulfonate (8:2 FtS)                         | µg/L              | 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              | 0.05              | <0.05             | <0.05             | <0.05             | <0.05             | <0.05               | <0.05               | <0.05 |
| Sum of PFAS   | µg/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01               | <0.01               | <0.01 |
| NA  |                   |                   |                   |                   |                   |                   |                     |                     |       |
| Sum of WA DWER PFAS (n=10)*                                   | UG/L              | 0.01              | <0.01             | <0.01             | <0.01             | <0.01             | <0.01               | <0.01               | <0.01 |

APPENDIX

C

LABORATORY CERTIFICATES



now





## CERTIFICATE OF ANALYSIS

Work Order : EM2314151-AC  
Client : STANTEC AUSTRALIA PTY LTD  
Contact : [REDACTED]  
Address : [REDACTED]  
Telephone : [REDACTED]  
Project : VIC\_0927\_PFASOMP\_23  
Order number : 304300114  
C-O-C number : 55352  
Sampler : [REDACTED]  
Site : SW - Offsite  
Quote number : SY/139/19\_Laverton  
No. of samples received : 14  
No. of samples analysed : 14

Page : 1 of 9  
Laboratory : Environmental Division Melbourne  
Contact : [REDACTED]  
Address : [REDACTED] 3171  
Telephone : [REDACTED]  
Date Samples Received : 04-Aug-2023 13:15  
Date Analysis Commenced : 08-Aug-2023  
Issue Date : 14-Aug-2023 12:08



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

| Signatories | Position            | Accreditation Category              |
|-------------|---------------------|-------------------------------------|
| [REDACTED]  | 2IC Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

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



## Analytical Results

Sub-Matrix: SURFACE WATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_SW024_202308<br>03 | 0927_SW078_202308<br>03 | 0927_SW041_202308<br>02 | 0927_SW027_202308<br>02 | 0927_SW030_202308<br>02 |
|--|------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 03-Aug-2023 13:09       | 03-Aug-2023 13:03       | 02-Aug-2023 17:32       | 02-Aug-2023 17:28       | 02-Aug-2023 17:24       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314151-005           | EM2314151-008           | EM2314151-009           | EM2314151-010           | EM2314151-011           |
|  |            |      |      | Result                  | Result                  | Result                  | Result                  | Result                  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.08                    | 0.13                    | <0.01                   | 0.05                    | <0.01                   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.07                    | 0.17                    | <0.01                   | 0.15                    | 0.01                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                    | <0.1                    | <0.1                    | <0.1                    | <0.1                    |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02                   | 0.02                    | <0.02                   | <0.02                   | <0.02                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01                   | 0.01                    | <0.01                   | <0.01                   | <0.01                   |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | <0.05                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |                         |                         |                         |                         |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | <0.05                   |



## Analytical Results

Sub-Matrix: SURFACE WATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_SW024_202308<br>03 | 0927_SW078_202308<br>03 | 0927_SW041_202308<br>02 | 0927_SW027_202308<br>02 | 0927_SW030_202308<br>02 |
|---|--------------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 03-Aug-2023 13:09       | 03-Aug-2023 13:03       | 02-Aug-2023 17:32       | 02-Aug-2023 17:28       | 02-Aug-2023 17:24       |
| Compound  | CAS Number         | LOR  | Unit | EM2314151-005<br>Result | EM2314151-008<br>Result | EM2314151-009<br>Result | EM2314151-010<br>Result | EM2314151-011<br>Result |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                         |                         |                         |                         |                         |
| 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                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                         |                         |                         |                         |                         |
| 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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                         |                         |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | 0.15                    | 0.33                    | <0.01                   | 0.20                    | 0.01                    |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 0.15                    | 0.30                    | <0.01                   | 0.20                    | 0.01                    |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | 0.15                    | 0.33                    | <0.01                   | 0.20                    | 0.01                    |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                         |                         |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | 101                     | 98.2                    | 100.0                   | 98.9                    | 94.7                    |
| 13C8-PFOA   | ---                | 0.02 | %    | 99.1                    | 98.6                    | 99.1                    | 97.9                    | 93.1                    |





## Analytical Results

Sub-Matrix: SURFACE WATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_SW045_202308<br>02 | 0927_SW052_202308<br>03 | 0927_SW085_202308<br>03 | 0927_SW086_202308<br>03 | 0927_SW087_202308<br>03 |
|--|------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 02-Aug-2023 17:16       | 03-Aug-2023 13:10       | 03-Aug-2023 13:11       | 03-Aug-2023 13:13       | 03-Aug-2023 13:18       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314151-012           | EM2314151-013           | EM2314151-014           | EM2314151-015           | EM2314151-016           |
|  |            |      |      | Result                  | Result                  | Result                  | Result                  | Result                  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | <0.01                   | 0.03                    | 0.03                    | 0.03                    | 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 | 0.02                    | 0.02                    | 0.04                    | 0.02                    | 0.02                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                    | <0.1                    | <0.1                    | <0.1                    | <0.1                    |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01                   | <0.01                   | <0.01                   | <0.01                   | <0.01                   |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | <0.05                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |                         |                         |                         |                         |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | <0.05                   |



## Analytical Results

Sub-Matrix: SURFACE WATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_SW045_202308<br>02 | 0927_SW052_202308<br>03 | 0927_SW085_202308<br>03 | 0927_SW086_202308<br>03 | 0927_SW087_202308<br>03 |
|---|--------------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 02-Aug-2023 17:16       | 03-Aug-2023 13:10       | 03-Aug-2023 13:11       | 03-Aug-2023 13:13       | 03-Aug-2023 13:18       |
| Compound  | CAS Number         | LOR  | Unit | EM2314151-012<br>Result | EM2314151-013<br>Result | EM2314151-014<br>Result | EM2314151-015<br>Result | EM2314151-016<br>Result |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                         |                         |                         |                         |                         |
| 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                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                         |                         |                         |                         |                         |
| 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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                         |                         |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | 0.02                    | 0.05                    | 0.07                    | 0.05                    | 0.05                    |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 0.02                    | 0.05                    | 0.07                    | 0.05                    | 0.05                    |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | 0.02                    | 0.05                    | 0.07                    | 0.05                    | 0.05                    |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                         |                         |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | 98.5                    | 101                     | 95.7                    | 92.2                    | 92.3                    |
| 13C8-PFOA   | ---                | 0.02 | %    | 96.1                    | 100                     | 96.9                    | 96.8                    | 97.2                    |



## Analytical Results

Sub-Matrix: SURFACE WATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_SW088_202308<br>03 | 0927_QC104_202308<br>03 | 0927_QC106_202308<br>03 | 0927_QC105_202308<br>03 | ----         |
|--|------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|--------------|
| Sampling date / time                           |            |      |      | 03-Aug-2023 13:14       | 03-Aug-2023 13:16       | 03-Aug-2023 13:19       | 03-Aug-2023 13:20       | ----         |
| Compound                                       | CAS Number | LOR  | Unit | EM2314151-017<br>Result | EM2314151-018<br>Result | EM2314151-019<br>Result | EM2314151-020<br>Result | -----<br>--- |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |                         |                         |                         |              |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | <b>0.03</b>             | <b>0.03</b>             | <b>0.04</b>             | <b>0.03</b>             | ----         |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | <b>0.02</b>             | <b>0.03</b>             | <b>0.02</b>             | <b>0.02</b>             | ----         |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |                         |                         |                         |              |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                    | <0.1                    | <0.1                    | <0.1                    | ----         |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01                   | <0.01                   | <0.01                   | <0.01                   | ----         |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |                         |                         |                         |              |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |



## Analytical Results

Sub-Matrix: SURFACE WATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_SW088_202308<br>03 | 0927_QC104_202308<br>03 | 0927_QC106_202308<br>03 | 0927_QC105_202308<br>03 | ----         |
|---|--------------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|--------------|
| Sampling date / time                                      |                    |      |      | 03-Aug-2023 13:14       | 03-Aug-2023 13:16       | 03-Aug-2023 13:19       | 03-Aug-2023 13:20       | ----         |
| Compound  | CAS Number         | LOR  | Unit | EM2314151-017<br>Result | EM2314151-018<br>Result | EM2314151-019<br>Result | EM2314151-020<br>Result | -----<br>--- |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                         |                         |                         |                         |              |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----         |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                         |                         |                         |                         |              |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----         |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                         |                         |                         |                         |              |
| Sum of PFAS   | ----               | 0.01 | µg/L | 0.05                    | 0.06                    | 0.06                    | 0.05                    | ----         |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 0.05                    | 0.06                    | 0.06                    | 0.05                    | ----         |
| Sum of PFAS (WA DER List)                                 | ----               | 0.01 | µg/L | 0.05                    | 0.06                    | 0.06                    | 0.05                    | ----         |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                         |                         |                         |                         |              |
| 13C4-PFOS   | ----               | 0.02 | %    | 92.6                    | 91.8                    | 95.4                    | 100                     | ----         |
| 13C8-PFOA   | ----               | 0.02 | %    | 95.6                    | 97.5                    | 97.1                    | 98.2                    | ----         |



### Surrogate Control Limits

| Sub-Matrix: SURFACE WATER     |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| <b>13C4-PFOS</b>              | ---        | 65                  | 140  |
| <b>13C8-PFOA</b>              | ---        | 71                  | 133  |



## QUALITY CONTROL REPORT

Work Order : EM2314151-AC

Page : 1 of 7

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Contact : [REDACTED]

Address : [REDACTED]

Address : [REDACTED]

Telephone : [REDACTED]

Telephone : [REDACTED]

Project : VIC\_0927\_PFASOMP\_23

Date Samples Received : 04-Aug-2023

Order number : 304300114

Date Analysis Commenced : 08-Aug-2023

C-O-C number : 55352

Issue Date : 14-Aug-2023

Sampler : [REDACTED]

Site : SW - Offsite

Quote number : SY/139/19\_Laverton

No. of samples received : 14

No. of samples analysed : 14



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

This Quality Control Report contains the following information:

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

### Signatories

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

| Signatories | Position            | Accreditation Category              |
|-------------|---------------------|-------------------------------------|
| [REDACTED]  | 2IC Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

|  |           |  |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|--|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method/Compound                                | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5222510)</b>   |           |  |            |                                   |      |                 |                  |         |                    |
| EM2314151-003  | Anonymous | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 0.11            | 0.10             | 0.0     | 0% - 50%           |
|  |           | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 0.08            | 0.08             | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| EM2314151-007  | Anonymous | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 0.10            | 0.10             | 0.0     | 0% - 50%           |
|  |           | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 0.05            | 0.06             | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5222510)</b> |           |  |            |                                   |      |                 |                  |         |                    |
| EM2314151-003  | Anonymous | EP231X: Perfluorooctanoic acid (PFOA)          | 335-67-1   | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentanoic acid (PFPeA)        | 2706-90-3  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorohexanoic acid (PFHxA)         | 307-24-4   | 0.02                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptanoic acid (PFHpA)        | 375-85-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorononanoic acid (PFNA)          | 375-95-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecanoic acid (PFDA)          | 335-76-2   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroundecanoic acid (PFUnDA)      | 2058-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorododecanoic acid (PFDoDA)      | 307-55-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotridecanoic acid (PFTriDA)    | 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 (%) |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5222510) - continued</b> |           |   |             |                                   |      |                 |                  |         |                    |
| EM2314151-007  | Anonymous | EP231X: Perfluorooctanoic acid (PFOA)                             | 335-67-1    | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentanoic acid (PFPeA)                           | 2706-90-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorohexanoic acid (PFHxA)                            | 307-24-4    | 0.02                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptanoic acid (PFHpA)                           | 375-85-9    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorononanoic acid (PFNA)                             | 375-95-1    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecanoic acid (PFDA)                             | 335-76-2    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroundecanoic acid (PFUnDA)                         | 2058-94-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorododecanoic acid (PFDoDA)                         | 307-55-1    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotridecanoic acid (PFTrDA)                        | 72629-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)                      | 376-06-7    | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| EP231X: Perfluorobutanoic acid (PFBA)  | 375-22-4  | 0.1   | µg/L        | <0.1                              | <0.1 | 0.0             | No Limit         |         |                    |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5222510)</b>                 |           |   |             |                                   |      |                 |                  |         |                    |
| EM2314151-003  | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | 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           |
| EM2314151-007  | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6    | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5222510)</b>          |           |   |             |                                   |      |                 |                  |         |                    |
| EM2314151-003  | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |





| 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 (%) |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5222510) - continued</b> |           |   |                    |                                   |      |                 |                  |         |                    |
| EM2314151-003   | Anonymous | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|   |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|   |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| EM2314151-007   | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)   | 757124-72-4        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|   |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|   |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|   |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231P: PFAS Sums (QC Lot: 5222510)</b>                                      |           |   |                    |                                   |      |                 |                  |         |                    |
| EM2314151-003   | Anonymous | EP231X: Sum of PFAS                                 | ---                | 0.01                              | µg/L | 0.21            | 0.20             | 4.9     | 0% - 20%           |
|   |           | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 0.19            | 0.18             | 5.4     | 0% - 50%           |
|   |           | EP231X: Sum of PFAS (WA DER List)                   | ---                | 0.01                              | µg/L | 0.21            | 0.20             | 4.9     | 0% - 20%           |
| EM2314151-007   | Anonymous | EP231X: Sum of PFAS                                 | ---                | 0.01                              | µg/L | 0.17            | 0.18             | 5.7     | 0% - 50%           |
|   |           | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 0.15            | 0.16             | 6.5     | 0% - 50%           |
|   |           | EP231X: Sum of PFAS (WA DER List)                   | ---                | 0.01                              | µg/L | 0.17            | 0.18             | 5.7     | 0% - 50%           |



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

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

Sub-Matrix: **WATER**

|  |            |      |      | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                           |                                   |     |
|--|------------|------|------|--------------------------|---------------------------------------|---------------------------|-----------------------------------|-----|
| Method: Compound   | CAS Number | LOR  | Unit | Result                   | Spike Concentration                   | Spike Recovery (%)<br>LCS | Acceptable Limits (%)<br>Low High |     |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5222510)</b>      |            |      |      |                          |                                       |                           |                                   |     |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                       | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 83.2                      | 72.0                              | 130 |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                     | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 90.6                      | 71.0                              | 127 |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                      | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 87.4                      | 68.0                              | 131 |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                     | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 92.2                      | 69.0                              | 134 |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                       | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 87.9                      | 65.0                              | 140 |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                       | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 84.7                      | 53.0                              | 142 |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5222510)</b>    |            |      |      |                          |                                       |                           |                                   |     |
| EP231X: Perfluorobutanoic acid (PFBA)                              | 375-22-4   | 0.1  | µg/L | <0.1                     | 1.25 µg/L                             | 83.6                      | 73.0                              | 129 |
| EP231X: Perfluoropentanoic acid (PFPeA)                            | 2706-90-3  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 87.6                      | 72.0                              | 129 |
| EP231X: Perfluorohexanoic acid (PFHxA)                             | 307-24-4   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 88.7                      | 72.0                              | 129 |
| EP231X: Perfluoroheptanoic acid (PFHpA)                            | 375-85-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 88.7                      | 72.0                              | 130 |
| EP231X: Perfluorooctanoic acid (PFOA)                              | 335-67-1   | 0.01 | µg/L | <0.01                    | 0.25 µg/L                             | 91.8                      | 71.0                              | 133 |
| EP231X: Perfluorononanoic acid (PFNA)                              | 375-95-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 87.2                      | 69.0                              | 130 |
| EP231X: Perfluorodecanoic acid (PFDA)                              | 335-76-2   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 86.7                      | 71.0                              | 129 |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                          | 2058-94-8  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 94.3                      | 69.0                              | 133 |
| EP231X: Perfluorododecanoic acid (PFDoDA)                          | 307-55-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 91.6                      | 72.0                              | 134 |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                         | 72629-94-8 | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 84.5                      | 65.0                              | 144 |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                       | 376-06-7   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 93.7                      | 71.0                              | 132 |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5222510)</b>        |            |      |      |                          |                                       |                           |                                   |     |
| EP231X: Perfluorooctane sulfonamide (FOSA)                         | 754-91-6   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 86.2                      | 67.0                              | 137 |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)              | 31506-32-8 | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 112                       | 68.0                              | 141 |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)               | 4151-50-2  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 93.5                      | 70.0                              | 130 |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)       | 24448-09-7 | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 83.8                      | 70.0                              | 130 |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)        | 1691-99-2  | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 94.0                      | 70.0                              | 130 |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)  | 2355-31-9  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 97.1                      | 65.0                              | 136 |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)   | 2991-50-6  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 81.8                      | 61.0                              | 135 |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5222510)</b> |            |      |      |                          |                                       |                           |                                   |     |



Sub-Matrix: **WATER**

| Method: Compound   | CAS Number             | LOR  | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |                       |      |
|--|------------------------|------|------|--------------------------|---------------------------------------|--------------------|-----------------------|------|
|  |                        |      |      | Result                   | Spike                                 | Spike Recovery (%) | Acceptable Limits (%) |      |
|  |                        |      |      |                          | Concentration                         | LCS                | Low                   | High |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5222510) - continued</b> |                        |      |      |                          |                                       |                    |                       |      |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                              | 757124-72-4            | 0.05 | µg/L | <0.05                    | 0.234 µg/L                            | 93.0               | 63.0                  | 143  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                              | 27619-97-2             | 0.05 | µg/L | <0.05                    | 0.238 µg/L                            | 101                | 64.0                  | 140  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                              | 39108-34-4             | 0.05 | µg/L | <0.05                    | 0.24 µg/L                             | 95.3               | 67.0                  | 138  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                    | 0.242 µg/L                            | 73.3               | 70.0                  | 130  |
| <b>EP231P: PFAS Sums (QCLot: 5222510)</b>                                      |                        |      |      |                          |                                       |                    |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                    | ----                                  | ---                | ---                   | ---  |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                    | ----                                  | ---                | ---                   | ---  |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                    | ----                                  | ---                | ---                   | ---  |

### Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number | Matrix Spike (MS) Report |                    |                       |      |
|---|-----------|---|------------|--------------------------|--------------------|-----------------------|------|
|   |           |   |            | Spike                    | Spike Recovery (%) | Acceptable Limits (%) |      |
|   |           |   |            | Concentration            | MS                 | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5222510)</b>   |           |   |            |                          |                    |                       |      |
| EM2314151-003   | Anonymous | EP231X: Perfluorobutane sulfonic acid (PFBS)                | 375-73-5   | 0.222 µg/L               | 86.4               | 72.0                  | 130  |
|   |           | EP231X: Perfluoropentane sulfonic acid (PFPeS)              | 2706-91-4  | 0.235 µg/L               | 89.8               | 71.0                  | 127  |
|   |           | EP231X: Perfluorohexane sulfonic acid (PFHxS)               | 355-46-4   | 0.228 µg/L               | 92.6               | 68.0                  | 131  |
|   |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS)              | 375-92-8   | 0.238 µg/L               | 99.7               | 69.0                  | 134  |
|   |           | EP231X: Perfluorooctane sulfonic acid (PFOS)                | 1763-23-1  | 0.232 µg/L               | 83.1               | 65.0                  | 140  |
|   |           | EP231X: Perfluorodecane sulfonic acid (PFDS)                | 335-77-3   | 0.241 µg/L               | 82.8               | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5222510)</b> |           |   |            |                          |                    |                       |      |
| EM2314151-003   | Anonymous | EP231X: Perfluorobutanoic acid (PFBA)                       | 375-22-4   | 1.25 µg/L                | 74.5               | 73.0                  | 129  |
|   |           | EP231X: Perfluoropentanoic acid (PFPeA)                     | 2706-90-3  | 0.25 µg/L                | 85.8               | 72.0                  | 129  |
|   |           | EP231X: Perfluorohexanoic acid (PFHxA)                      | 307-24-4   | 0.25 µg/L                | 86.3               | 72.0                  | 129  |
|   |           | EP231X: Perfluoroheptanoic acid (PFHpA)                     | 375-85-9   | 0.25 µg/L                | 87.2               | 72.0                  | 130  |
|   |           | EP231X: Perfluorooctanoic acid (PFOA)                       | 335-67-1   | 0.25 µg/L                | 92.6               | 71.0                  | 133  |
|   |           | EP231X: Perfluorononanoic acid (PFNA)                       | 375-95-1   | 0.25 µg/L                | 89.6               | 69.0                  | 130  |
|   |           | EP231X: Perfluorodecanoic acid (PFDA)                       | 335-76-2   | 0.25 µg/L                | 85.2               | 71.0                  | 129  |
|   |           | EP231X: Perfluoroundecanoic acid (PFUnDA)                   | 2058-94-8  | 0.25 µg/L                | 90.6               | 69.0                  | 133  |
|   |           | EP231X: Perfluorododecanoic acid (PFDoDA)                   | 307-55-1   | 0.25 µg/L                | 84.1               | 72.0                  | 134  |
|   |           | EP231X: Perfluorotridecanoic acid (PFTrDA)                  | 72629-94-8 | 0.25 µg/L                | 74.8               | 65.0                  | 144  |
|   |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)                | 376-06-7   | 0.625 µg/L               | 76.6               | 71.0                  | 132  |
|   |           | <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5222510)</b> |            |                          |                    |                       |      |



Sub-Matrix: **WATER**

|   |           |   |             | Matrix Spike (MS) Report |                  |                       |      |
|---|-----------|---|-------------|--------------------------|------------------|-----------------------|------|
|   |           |   |             | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number  | Concentration            | MS               | Low                   | High |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5222510) - continued</b> |           |   |             |                          |                  |                       |      |
| EM2314151-003   | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6    | 0.25 µg/L                | 84.7             | 67.0                  | 137  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.625 µg/L               | 95.5             | 68.0                  | 141  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.625 µg/L               | 87.9             | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 87.0             | 70.0                  | 130  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 87.0             | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 94.6             | 65.0                  | 136  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 79.2             | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5222510)</b>      |           |   |             |                          |                  |                       |      |
| EM2314151-003   | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 96.8             | 63.0                  | 143  |
|   |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 98.1             | 64.0                  | 140  |
|   |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 106              | 67.0                  | 138  |
|   |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | 70.4             | 70.0                  | 130  |



## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2314151                 | Page                    | : 1 of 5                           |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : [REDACTED]                       |
| Project      | : VIC_0927_PFASOMP_23       | Date Samples Received   | : 04-Aug-2023                      |
| Site         | : SW - Offsite              | Issue Date              | : 14-Aug-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 20                               |
| Order number | : 304300114                 | No. of samples analysed | : 20                               |

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



## Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_20230802,<br>0927_SW020_20230802,<br>0927_SW041_20230802,<br>0927_SW030_20230802,   | 0927_SW013_20230802 - Lab internal QC,<br>0927_SW073_20230802 - Lab internal QC,<br>0927_SW027_20230802,<br>0927_SW045_20230802             | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_20230803,<br>0927_SW049_20230803,<br>0927_SW052_20230803,<br>0927_SW086_20230803,<br>0927_SW088_20230803,<br>0927_QC106_20230803, | 0927_SW024_20230803,<br>0927_SW078_20230803,<br>0927_SW085_20230803,<br>0927_SW087_20230803,<br>0927_QC104_20230803,<br>0927_QC105_20230803 | 03-Aug-2023              | 09-Aug-2023        | 30-Jan-2024 | ✓             | 10-Aug-2023      | 30-Jan-2024 | ✓ |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927 SW012 20230802,<br>0927 SW020 20230802,<br>0927 SW041 20230802,<br>0927 SW030 20230802,   | 0927 SW013 20230802 Lab internal QC,<br>0927 SW073 20230802 Lab internal QC,<br>0927 SW027 20230802,<br>0927 SW045 20230802                 | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927 SW015 20230803,<br>0927 SW049 20230803,<br>0927 SW052 20230803,<br>0927 SW086 20230803,<br>0927 SW088 20230803,<br>0927 QC106 20230803, | 0927 SW024 20230803,<br>0927 SW078 20230803,<br>0927 SW085 20230803,<br>0927 SW087 20230803,<br>0927 QC104 20230803,<br>0927 QC105 20230803 | 03-Aug-2023              | 09-Aug-2023        | 30-Jan-2024 | ✓             | 10-Aug-2023      | 30-Jan-2024 | ✓ |



Matrix: WATER Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_20230802,<br>0927_SW020_20230802,<br>0927_SW041_20230802,<br>0927_SW030_20230802,   | 0927_SW013_20230802 - Lab internal QC,<br>0927_SW073_20230802 - Lab internal QC,<br>0927_SW027_20230802,<br>0927_SW045_20230802             | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_20230803,<br>0927_SW049_20230803,<br>0927_SW052_20230803,<br>0927_SW086_20230803,<br>0927_SW088_20230803,<br>0927_QC106_20230803, | 0927_SW024_20230803,<br>0927_SW078_20230803,<br>0927_SW085_20230803,<br>0927_SW087_20230803,<br>0927_QC104_20230803,<br>0927_QC105_20230803 | 03-Aug-2023              | 09-Aug-2023        | 30-Jan-2024 | ✓             | 10-Aug-2023      | 30-Jan-2024 | ✓ |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>  |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_20230802,<br>0927_SW020_20230802,<br>0927_SW041_20230802,<br>0927_SW030_20230802,   | 0927_SW013_20230802 - Lab internal QC,<br>0927_SW073_20230802 - Lab internal QC,<br>0927_SW027_20230802,<br>0927_SW045_20230802             | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_20230803,<br>0927_SW049_20230803,<br>0927_SW052_20230803,<br>0927_SW086_20230803,<br>0927_SW088_20230803,<br>0927_QC106_20230803, | 0927_SW024_20230803,<br>0927_SW078_20230803,<br>0927_SW085_20230803,<br>0927_SW087_20230803,<br>0927_QC104_20230803,<br>0927_QC105_20230803 | 03-Aug-2023              | 09-Aug-2023        | 30-Jan-2024 | ✓             | 10-Aug-2023      | 30-Jan-2024 | ✓ |
| <b>EP231P: PFAS Sums</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW012_20230802,<br>0927_SW020_20230802,<br>0927_SW041_20230802,<br>0927_SW030_20230802,   | 0927_SW013_20230802 - Lab internal QC,<br>0927_SW073_20230802 - Lab internal QC,<br>0927_SW027_20230802,<br>0927_SW045_20230802             | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW015_20230803,<br>0927_SW049_20230803,<br>0927_SW052_20230803,<br>0927_SW086_20230803,<br>0927_SW088_20230803,<br>0927_QC106_20230803, | 0927_SW024_20230803,<br>0927_SW078_20230803,<br>0927_SW085_20230803,<br>0927_SW087_20230803,<br>0927_QC104_20230803,<br>0927_QC105_20230803 | 03-Aug-2023              | 09-Aug-2023        | 30-Jan-2024 | ✓             | 10-Aug-2023      | 30-Jan-2024 | ✓ |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 2     | 20      | 10.00    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 20      | 5.00     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 20      | 5.00     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 20      | 5.00     | 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.

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Solid Phase Extraction (SPE) for PFAS in water       | ORG72         | WATER         | In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.  |

**CHAIN OF CUSTODY**  
 (ALS) COC#: 55352 ALS Laboratory: EM Melbourne

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD  
 PROJECT: 0927\_PFASOMP\_23  
 SITE: SW - Offsite  
 ORDER NO: 304300114

PROJECT MANAGER: [REDACTED]  
 PRIMARY SAMPLER: [REDACTED]  
 EMAIL REPORTS TO: [REDACTED]  
 EMAIL INVOICES TO: [REDACTED]

CONTACT PH: [REDACTED] SAMPLER MOBILE: [REDACTED]  
 QUOTE NO: SY/139/19\_Laverton / EM2023MWHAUS000  
 2

|                  |              |                  |                            |
|------------------|--------------|------------------|----------------------------|
| RELINQUISHED BY: | RECEIVED BY: | RELINQUISHED BY: | RECEIVED BY:               |
| DATE TIME:       | DATE TIME:   | DATE TIME:       | DATE TIME: 13:15<br>4/8/23 |

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact? Yes No N/A  
 Free ice / frozen ice bricks present upon receipt? Yes No N/A  
 Random Sample Temperature on Receipt: °C  
 Other comments:

| SAMPLE DETAILS |                     |                 |                        |        |                      |         | ANALYSIS REQUIRED |                      |                        |
|----------------|---------------------|-----------------|------------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| SAMPLE         | NAME                | DESCRIPTION     | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 001            | 0927_SW015_20230803 |                 | 03/08/2023<br>01:04 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 002            | 0927_SW012_20230802 |                 | 02/08/2023<br>05:34 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 003            | 0927_SW013_20230802 | Lab internal QC | 02/08/2023<br>04:56 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      | X                 |                      |                        |
| 004            | 0927_SW020_20230802 |                 | 02/08/2023<br>05:20 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 005            | 0927_SW024_20230803 |                 | 03/08/2023<br>01:09 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 006            | 0927_SW049_20230803 |                 | 03/08/2023<br>01:08 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 007            | 0927_SW073_20230802 | Lab internal QC | 02/08/2023<br>05:08 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      | X                 |                      |                        |

Environmental Division  
 Melbourne  
 Work Order Reference  
**EM2314151**



|   |  |  |              |   |              |
|---|--|--|--------------|---|--------------|
| <b>CHAIN OF CUSTODY</b><br>ALS COC#: 55352 ALS Laboratory: EM Melbourne |  | RELINQUISHED BY:                                 | RECEIVED BY: | RELINQUISHED BY:  | RECEIVED BY: |
| CLIENT: MWHHAUS - STANTEC AUSTRALIA PTY LTD                             |  | DATE TIME:                                       | DATE TIME:   | DATE TIME:  | 4/8/23 15:15 |
| PROJECT: 0927_PFASOMP_23  |  | TURNAROUND REQUIREMENTS : 5 Days                 |              | LABORATORY USE ONLY (Circle)                                  |              |
| SITE: SW - Offsite  |  | Biohazard info:                                  |              | Custody Seal intact? Yes No N/A                               |              |
| ORDER NO: 304300114   |  |  |              | Free ice / frozen ice bricks present upon receipt? Yes No N/A |              |
| PROJECT MANAGER: [REDACTED]   |  | CONTACT PH: [REDACTED]                           |              | Random Sample Temperature on Receipt: °C                      |              |
| PRIMARY SAMPLER: [REDACTED]   |  | SAMPLER MOBILE: [REDACTED]                       |              | Other comments:   |              |
| EMAIL REPORTS TO: [REDACTED]  |  | QUOTE NO: SY/139/19_Laverton / EM2023MWHHAUS0002 |              |   |              |
| EMAIL INVOICES TO: [REDACTED]   |  |  |              |   |              |

| SAMPLE DETAILS |                     |             |                     |        |                      |         | ANALYSIS REQUIRED |                      |                        |
|----------------|---------------------|-------------|---------------------|--------|----------------------|---------|-------------------|----------------------|------------------------|
| SAMPLE         | NAME                | DESCRIPTION | DATE / TIME         | MATRIX | TOTAL BOTTLES        | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 008            | 0927_SW078_20230803 |             | 03/08/2023 01:03 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 009            | 0927_SW041_20230802 |             | 02/08/2023 05:32 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 010            | 0927_SW027_20230802 |             | 02/08/2023 05:28 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 011            | 0927_SW030_20230802 |             | 02/08/2023 05:24 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 012            | 0927_SW045_20230802 |             | 02/08/2023 05:16 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 013            | 0927_SW052_20230803 |             | 03/08/2023 01:10 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |
| 014            | 0927_SW085_20230803 |             | 03/08/2023 01:11 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      | X                 |                      |                        |





## CERTIFICATE OF ANALYSIS

Work Order : **EM2314152-AB**  
Client : **STANTEC AUSTRALIA PTY LTD**  
Contact : [REDACTED]  
Address : [REDACTED]  
Telephone : [REDACTED]  
Project : VIC\_0927\_PFASOMP\_23  
Order number : 304300114  
C-O-C number : 55353  
Sampler : [REDACTED]  
Site : SW - onsite  
Quote number : SY/139/19\_Laverton  
No. of samples received : 1  
No. of samples analysed : 1

Page : 1 of 5  
Laboratory : Environmental Division Melbourne  
Contact : [REDACTED]  
Address : [REDACTED]  
Telephone : + [REDACTED]  
Date Samples Received : 04-Aug-2023 13:15  
Date Analysis Commenced : 08-Aug-2023  
Issue Date : 14-Aug-2023 12:32



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

Signatories

Position

Accreditation Category

[REDACTED]

2IC Organic Chemist

Melbourne Organics, Springvale, VIC



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

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



## Analytical Results

| Sub-Matrix: SURFACE WATER<br>(Matrix: WATER)   |            | Sample ID         |      | 0927_SW005_202308<br>02 | ---   | ---   | ---   | ---   |
|--|------------|-------------------|------|-------------------------|-------|-------|-------|-------|
| Sampling date / time                           |            | 02-Aug-2023 17:21 |      | ---                     | ---   | ---   | ---   | ---   |
| Compound                                       | CAS Number | LOR               | Unit | EM2314152-001           | ----- | ----- | ----- | ----- |
|  |            |                   |      | Result                  | ---   | ---   | ---   | ---   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |                   |      |                         |       |       |       |       |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02              | µg/L | <0.02                   | ---   | ---   | ---   | ---   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02              | µg/L | <0.02                   | ---   | ---   | ---   | ---   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01              | µg/L | 0.08                    | ---   | ---   | ---   | ---   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02              | µg/L | <0.02                   | ---   | ---   | ---   | ---   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01              | µg/L | 0.02                    | ---   | ---   | ---   | ---   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02              | µg/L | <0.02                   | ---   | ---   | ---   | ---   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |                   |      |                         |       |       |       |       |
| 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                   | ---   | ---   | ---   | ---   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |                   |      |                         |       |       |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02              | µg/L | <0.02                   | ---   | ---   | ---   | ---   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05              | µg/L | <0.05                   | ---   | ---   | ---   | ---   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05              | µg/L | <0.05                   | ---   | ---   | ---   | ---   |



## Analytical Results

Sub-Matrix: SURFACE WATER  
 (Matrix: WATER)

Sample ID

0927\_SW005\_202308  
02

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Sampling date / time

02-Aug-2023 17:21

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Compound CAS Number LOR Unit

EM2314152-001

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Result

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### EP231C: Perfluoroalkyl Sulfonamides - Continued

|   |            |      |      |       |     |     |     |     |
|---|------------|------|------|-------|-----|-----|-----|-----|
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7 | 0.05 | µg/L | <0.05 | --- | --- | --- | --- |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2  | 0.05 | µg/L | <0.05 | --- | --- | --- | --- |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9  | 0.02 | µg/L | <0.02 | --- | --- | --- | --- |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6  | 0.02 | µg/L | <0.02 | --- | --- | --- | --- |

### EP231D: (n:2) Fluorotelomer Sulfonic Acids

|   |             |      |      |       |     |     |     |     |
|---|-------------|------|------|-------|-----|-----|-----|-----|
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)   | 757124-72-4 | 0.05 | µg/L | <0.05 | --- | --- | --- | --- |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2  | 0.05 | µg/L | <0.05 | --- | --- | --- | --- |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4  | 0.05 | µg/L | <0.05 | --- | --- | --- | --- |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0 | 0.05 | µg/L | <0.05 | --- | --- | --- | --- |

### EP231P: PFAS Sums

|                           |                    |      |      |      |     |     |     |     |
|---------------------------|--------------------|------|------|------|-----|-----|-----|-----|
| Sum of PFAS               | ---                | 0.01 | µg/L | 0.12 | --- | --- | --- | --- |
| Sum of PFHxS and PFOS     | 355-46-4/1763-23-1 | 0.01 | µg/L | 0.10 | --- | --- | --- | --- |
| Sum of PFAS (WA DER List) | ---                | 0.01 | µg/L | 0.12 | --- | --- | --- | --- |

### EP231S: PFAS Surrogate

|           |     |      |   |      |     |     |     |     |
|-----------|-----|------|---|------|-----|-----|-----|-----|
| 13C4-PFOS | --- | 0.02 | % | 89.3 | --- | --- | --- | --- |
| 13C8-PFOA | --- | 0.02 | % | 95.5 | --- | --- | --- | --- |





### Surrogate Control Limits

| Sub-Matrix: SURFACE WATER     |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| <b>13C4-PFOS</b>              | ---        | 65                  | 140  |
| <b>13C8-PFOA</b>              | ---        | 71                  | 133  |



# QUALITY CONTROL REPORT

Work Order : EM2314152-AB

Client : STANTEC AUSTRALIA PTY LTD

Contact : [REDACTED]

Address : [REDACTED]

Telephone : [REDACTED]

Project : VIC\_0927\_PFASOMP\_23

Order number : 304300114

C-O-C number : 55353

Sampler : [REDACTED]

Site : SW - onsite

Quote number : SY/139/19\_Laverton

No. of samples received : 1

No. of samples analysed : 1

Page : 1 of 6

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Address : [REDACTED]

Telephone : + [REDACTED]

Date Samples Received : 04-Aug-2023

Date Analysis Commenced : 08-Aug-2023

Issue Date : 14-Aug-2023



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

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

This Quality Control Report contains the following information:

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

## Signatories

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

| Signatories | Position            | Accreditation Category              |
|-------------|---------------------|-------------------------------------|
| [REDACTED]  | 2IC Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

|  |           |   |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|---|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method/Compound   | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5225375)</b>   |           |   |            |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: Perfluorohexane sulfonic acid (PFHxS)                     | 355-46-4   | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorooctane sulfonic acid (PFOS)                      | 1763-23-1  | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutane sulfonic acid (PFBS)                      | 375-73-5   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentane sulfonic acid (PFPeS)                    | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS)                    | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecane sulfonic acid (PFDS)                      | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5225375)</b> |           |   |            |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: Perfluorooctanoic acid (PFOA)                             | 335-67-1   | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentanoic acid (PFPeA)                           | 2706-90-3  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorohexanoic acid (PFHxA)                            | 307-24-4   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptanoic acid (PFHpA)                           | 375-85-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorononanoic acid (PFNA)                             | 375-95-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecanoic acid (PFDA)                             | 335-76-2   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroundecanoic acid (PFUnDA)                         | 2058-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorododecanoic acid (PFDoDA)                         | 307-55-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotridecanoic acid (PFTrDA)                        | 72629-94-8 | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)                      | 376-06-7   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutanoic acid (PFBA)                             | 375-22-4   | 0.1                               | µg/L | <0.1            | <0.1             | 0.0     | No Limit           |
|  |           | <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5225375)</b>      |            |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |



| Sub-Matrix: WATER  |           |  |                    | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|--|--------------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method: Compound   | CAS Number         | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5225375) - continued</b> |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)        | 31506-32-8         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)         | 4151-50-2          | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE) | 24448-09-7         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)  | 1691-99-2          | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5225375)</b>      |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)            | 757124-72-4        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)            | 27619-97-2         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)            | 39108-34-4         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)          | 120226-60-0        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231P: PFAS Sums (QC Lot: 5225375)</b>                               |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: Sum of PFAS  | ----               | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Sum of PFHxS and PFOS                                | 355-46-4/1763-23-1 | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Sum of PFAS (WA DER List)                            | ---                | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |



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

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

Sub-Matrix: **WATER**

|  |            |      |      | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                        |                           |                       |
|--|------------|------|------|-----------------------------|---------------------------------------|------------------------|---------------------------|-----------------------|
|  |            |      |      |                             | Result                                | Spike<br>Concentration | Spike Recovery (%)<br>LCS | Acceptable Limits (%) |
| Method: Compound   | CAS Number | LOR  | Unit | Low                         |                                       |                        |                           | High                  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5225375)</b>      |            |      |      |                             |                                       |                        |                           |                       |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                       | 375-73-5   | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 92.5                   | 72.0                      | 130                   |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                     | 2706-91-4  | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 99.0                   | 71.0                      | 127                   |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                      | 355-46-4   | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 95.3                   | 68.0                      | 131                   |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                     | 375-92-8   | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 96.6                   | 69.0                      | 134                   |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                       | 1763-23-1  | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 91.8                   | 65.0                      | 140                   |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                       | 335-77-3   | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 89.6                   | 53.0                      | 142                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5225375)</b>    |            |      |      |                             |                                       |                        |                           |                       |
| EP231X: Perfluorobutanoic acid (PFBA)                              | 375-22-4   | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 88.8                   | 73.0                      | 129                   |
| EP231X: Perfluoropentanoic acid (PFPeA)                            | 2706-90-3  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.3                   | 72.0                      | 129                   |
| EP231X: Perfluorohexanoic acid (PFHxA)                             | 307-24-4   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.4                   | 72.0                      | 129                   |
| EP231X: Perfluoroheptanoic acid (PFHpA)                            | 375-85-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.2                   | 72.0                      | 130                   |
| EP231X: Perfluorooctanoic acid (PFOA)                              | 335-67-1   | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 94.0                   | 71.0                      | 133                   |
| EP231X: Perfluorononanoic acid (PFNA)                              | 375-95-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.9                   | 69.0                      | 130                   |
| EP231X: Perfluorodecanoic acid (PFDA)                              | 335-76-2   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.2                   | 71.0                      | 129                   |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                          | 2058-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 99.8                   | 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                             | 94.5                   | 65.0                      | 144                   |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                       | 376-06-7   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 103                    | 71.0                      | 132                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5225375)</b>        |            |      |      |                             |                                       |                        |                           |                       |
| EP231X: Perfluorooctane sulfonamide (FOSA)                         | 754-91-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.1                   | 67.0                      | 137                   |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)              | 31506-32-8 | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 111                    | 68.0                      | 141                   |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)               | 4151-50-2  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 112                    | 70.0                      | 130                   |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)       | 24448-09-7 | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 90.4                   | 70.0                      | 130                   |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)        | 1691-99-2  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 104                    | 70.0                      | 130                   |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)  | 2355-31-9  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.2                   | 65.0                      | 136                   |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)   | 2991-50-6  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 88.1                   | 61.0                      | 135                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5225375)</b> |            |      |      |                             |                                       |                        |                           |                       |



Sub-Matrix: **WATER**

| Method: Compound   | CAS Number             | LOR  | Unit | Method Blank (MB) Report Result | Laboratory Control Spike (LCS) Report |                    |                       |      |
|--|------------------------|------|------|---------------------------------|---------------------------------------|--------------------|-----------------------|------|
|  |                        |      |      |                                 | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |      |
|  |                        |      |      |                                 |                                       | LCS                | Low                   | High |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5225375) - continued</b> |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                              | 757124-72-4            | 0.05 | µg/L | <0.05                           | 0.234 µg/L                            | 98.7               | 63.0                  | 143  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                              | 27619-97-2             | 0.05 | µg/L | <0.05                           | 0.238 µg/L                            | 101                | 64.0                  | 140  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                              | 39108-34-4             | 0.05 | µg/L | <0.05                           | 0.24 µg/L                             | 96.3               | 67.0                  | 138  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                           | 0.242 µg/L                            | 77.7               | 70.0                  | 130  |
| <b>EP231P: PFAS Sums (QCLot: 5225375)</b>                                      |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ---                | ---                   | ---  |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                           | ----                                  | ---                | ---                   | ---  |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ---                | ---                   | ---  |

### Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number | Matrix Spike (MS) Report |                   |                       |      |
|---|-----------|---|------------|--------------------------|-------------------|-----------------------|------|
|   |           |   |            | Spike Concentration      | Spike Recovery(%) | Acceptable Limits (%) |      |
|   |           |   |            |                          | MS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5225375)</b>   |           |   |            |                          |                   |                       |      |
| EM2314152-002   | Anonymous | EP231X: Perfluorobutane sulfonic acid (PFBS)                | 375-73-5   | 0.222 µg/L               | 90.8              | 72.0                  | 130  |
|   |           | EP231X: Perfluoropentane sulfonic acid (PFPeS)              | 2706-91-4  | 0.235 µg/L               | 89.5              | 71.0                  | 127  |
|   |           | EP231X: Perfluorohexane sulfonic acid (PFHxS)               | 355-46-4   | 0.228 µg/L               | 89.7              | 68.0                  | 131  |
|   |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS)              | 375-92-8   | 0.238 µg/L               | 94.2              | 69.0                  | 134  |
|   |           | EP231X: Perfluorooctane sulfonic acid (PFOS)                | 1763-23-1  | 0.232 µg/L               | 87.6              | 65.0                  | 140  |
|   |           | EP231X: Perfluorodecane sulfonic acid (PFDS)                | 335-77-3   | 0.241 µg/L               | 87.4              | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5225375)</b> |           |   |            |                          |                   |                       |      |
| EM2314152-002   | Anonymous | EP231X: Perfluorobutanoic acid (PFBA)                       | 375-22-4   | 1.25 µg/L                | 81.0              | 73.0                  | 129  |
|   |           | EP231X: Perfluoropentanoic acid (PFPeA)                     | 2706-90-3  | 0.25 µg/L                | 87.9              | 72.0                  | 129  |
|   |           | EP231X: Perfluorohexanoic acid (PFHxA)                      | 307-24-4   | 0.25 µg/L                | 88.4              | 72.0                  | 129  |
|   |           | EP231X: Perfluoroheptanoic acid (PFHpA)                     | 375-85-9   | 0.25 µg/L                | 89.4              | 72.0                  | 130  |
|   |           | EP231X: Perfluorooctanoic acid (PFOA)                       | 335-67-1   | 0.25 µg/L                | 96.0              | 71.0                  | 133  |
|   |           | EP231X: Perfluorononanoic acid (PFNA)                       | 375-95-1   | 0.25 µg/L                | 91.7              | 69.0                  | 130  |
|   |           | EP231X: Perfluorodecanoic acid (PFDA)                       | 335-76-2   | 0.25 µg/L                | 91.5              | 71.0                  | 129  |
|   |           | EP231X: Perfluoroundecanoic acid (PFUnDA)                   | 2058-94-8  | 0.25 µg/L                | 93.5              | 69.0                  | 133  |
|   |           | EP231X: Perfluorododecanoic acid (PFDoDA)                   | 307-55-1   | 0.25 µg/L                | 94.9              | 72.0                  | 134  |
|   |           | EP231X: Perfluorotridecanoic acid (PFTrDA)                  | 72629-94-8 | 0.25 µg/L                | 83.0              | 65.0                  | 144  |
|   |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)                | 376-06-7   | 0.625 µg/L               | 91.4              | 71.0                  | 132  |
|   |           | <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5225375)</b> |            |                          |                   |                       |      |



Sub-Matrix: **WATER**

|   |           |   |             | Matrix Spike (MS) Report |                  |                       |      |
|---|-----------|---|-------------|--------------------------|------------------|-----------------------|------|
|   |           |   |             | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number  | Concentration            | MS               | Low                   | High |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5225375) - continued</b> |           |   |             |                          |                  |                       |      |
| EM2314152-002   | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6    | 0.25 µg/L                | 88.6             | 67.0                  | 137  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.625 µg/L               | 91.6             | 68.0                  | 141  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.625 µg/L               | 83.1             | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 88.7             | 70.0                  | 130  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 91.7             | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 96.3             | 65.0                  | 136  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 98.4             | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5225375)</b>      |           |   |             |                          |                  |                       |      |
| EM2314152-002   | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 95.5             | 63.0                  | 143  |
|   |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 99.1             | 64.0                  | 140  |
|   |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 105              | 67.0                  | 138  |
|   |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | 71.0             | 70.0                  | 130  |



## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2314152                 | Page                    | : 1 of 5                           |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : + [REDACTED]                     |
| Project      | : VIC_0927_PFASOMP_23       | Date Samples Received   | : 04-Aug-2023                      |
| Site         | : SW - onsite               | Issue Date              | : 14-Aug-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 4                                |
| Order number | : 304300114                 | No. of samples analysed | : 4                                |

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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





**Outliers : Frequency of Quality Control Samples**

Matrix: **WATER**

| Quality Control Sample Type<br>Method   | Count |         | Rate (%) |          | Quality Control Specification  |
|---|-------|---------|----------|----------|--------------------------------|
|   | QC    | Regular | Actual   | Expected |                                |
| Laboratory Duplicates (DUP)<br>Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 1     | 13      | 7.69     | 10.00    | NEPM 2013 B3 & ALS QC Standard |

**Analysis Holding Time Compliance**

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results. This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein. Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters. Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                              | Sample Date | Extraction / Preparation |                    |            | Analysis      |                  |            |
|--|-------------|--------------------------|--------------------|------------|---------------|------------------|------------|
|  |             | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>                           |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_20230801 - Internal Lab QC       | 01-Aug-2023 | 10-Aug-2023              | 28-Jan-2024        | ✓          | 11-Aug-2023   | 28-Jan-2024      | ✓          |
| HDPE (no PTFE) (EP231X)<br>0927_SW005_20230802,<br>0927_SW043_20230802 | 02-Aug-2023 | 10-Aug-2023              | 29-Jan-2024        | ✓          | 11-Aug-2023   | 29-Jan-2024      | ✓          |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>                         |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_20230801 - Internal Lab QC       | 01-Aug-2023 | 10-Aug-2023              | 28-Jan-2024        | ✓          | 11-Aug-2023   | 28-Jan-2024      | ✓          |
| HDPE (no PTFE) (EP231X)<br>0927_SW005_20230802,<br>0927_SW043_20230802 | 02-Aug-2023 | 10-Aug-2023              | 29-Jan-2024        | ✓          | 11-Aug-2023   | 29-Jan-2024      | ✓          |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>                             |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_20230801 - Internal Lab QC       | 01-Aug-2023 | 10-Aug-2023              | 28-Jan-2024        | ✓          | 11-Aug-2023   | 28-Jan-2024      | ✓          |
| HDPE (no PTFE) (EP231X)<br>0927_SW005_20230802,<br>0927_SW043_20230802 | 02-Aug-2023 | 10-Aug-2023              | 29-Jan-2024        | ✓          | 11-Aug-2023   | 29-Jan-2024      | ✓          |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>                      |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>0927_SW006_20230801 - Internal Lab QC       | 01-Aug-2023 | 10-Aug-2023              | 28-Jan-2024        | ✓          | 11-Aug-2023   | 28-Jan-2024      | ✓          |
| HDPE (no PTFE) (EP231X)<br>0927_SW005_20230802,<br>0927_SW043_20230802 | 02-Aug-2023 | 10-Aug-2023              | 29-Jan-2024        | ✓          | 11-Aug-2023   | 29-Jan-2024      | ✓          |



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                                     | Sample Date | Extraction / Preparation |                    |            | Analysis      |                  |            |
|---|-------------|--------------------------|--------------------|------------|---------------|------------------|------------|
|   |             | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| <b>EP231P: PFAS Sums</b>  |             |                          |                    |            |               |                  |            |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW006_20230801 - Internal Lab QC       | 01-Aug-2023 | 10-Aug-2023              | 28-Jan-2024        | ✓          | 11-Aug-2023   | 28-Jan-2024      | ✓          |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_SW005_20230802,<br>0927_SW043_20230802 | 02-Aug-2023 | 10-Aug-2023              | 29-Jan-2024        | ✓          | 11-Aug-2023   | 29-Jan-2024      | ✓          |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 13      | 7.69     | 10.00    | ✖          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 13      | 7.69     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 13      | 7.69     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 13      | 7.69     | 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.

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Solid Phase Extraction (SPE) for PFAS in water       | ORG72         | WATER         | In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.  |



# CHAIN OF CUSTODY

COC#: 55353

ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:  
4/13/15

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: 0927\_PFASOMP\_23

SITE: SW - onsite

ORDER NO: 304300114

PROJECT MANAGER:

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19\_Laverton

SAMPLER MOBILE:

/ EM2023MWHAUS000  
2

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact?

Yes No N/A

Free ice / frozen ice bricks present upon receipt?

Yes No N/A

Random Sample Temperature on Receipt:

C

Other comments:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

## SAMPLE DETAILS

## ANALYSIS REQUIRED

| SAMPLE | NAME                | DESCRIPTION     | DATE / TIME            | MATRIX | TOTAL BOTTLES       | ON HOLD | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
|--------|---------------------|-----------------|------------------------|--------|---------------------|---------|-------------------|----------------------|------------------------|
| 001    | 0927_SW005_20230802 |                 | 02/08/2023<br>05:21 PM | WATER  | ALS: 2<br>NonALS: 0 | No      | X                 |                      |                        |
| 002    | 0927_SW006_20230801 | Internal Lab QC | 01/08/2023<br>04:53 PM | WATER  | ALS: 6<br>NonALS: 0 | No      | X                 |                      |                        |
| 003    | 0927_SW034_20230802 |                 | 02/08/2023<br>05:31 PM | WATER  | ALS: 2<br>NonALS: 0 | No      | X                 |                      |                        |
| 004    | 0927_SW043_20230802 |                 | 02/08/2023<br>05:23 PM | WATER  | ALS: 2<br>NonALS: 0 | No      | X                 |                      |                        |

Environmental Division  
Melbourne

Work Order Reference

**EM2314152**



## CERTIFICATE OF ANALYSIS

Work Order : **EM2314153-AB**  
Client : **STANTEC AUSTRALIA PTY LTD**  
Contact : [REDACTED]  
Address : [REDACTED]  
Telephone : [REDACTED]  
Project : VIC\_0927\_PFASOMP\_23  
Order number : 304300114  
C-O-C number : 55355  
Sampler : [REDACTED]  
Site : GW - Offsite  
Quote number : SY/139/19\_Laverton  
No. of samples received : 5  
No. of samples analysed : 5

Page : 1 of 5  
Laboratory : Environmental Division Melbourne  
Contact : [REDACTED]  
Address : [REDACTED]  
Telephone : + [REDACTED]  
Date Samples Received : 04-Aug-2023 13:15  
Date Analysis Commenced : 08-Aug-2023  
Issue Date : 14-Aug-2023 12:36



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

Signatories

Position

Accreditation Category

[REDACTED]

2IC Organic Chemist

Melbourne Organics, Springvale, VIC



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Sample EM2314153-008 required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW126_202308<br>02 | 0927_MW124_202308<br>01 | 0927_MW130_202308<br>02 | 0927_MW131_202308<br>01 | 0927_MW137_202308<br>01 |
|--|------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 02-Aug-2023 17:15       | 01-Aug-2023 16:39       | 02-Aug-2023 17:37       | 01-Aug-2023 17:55       | 01-Aug-2023 18:01       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314153-002           | EM2314153-005           | EM2314153-007           | EM2314153-008           | EM2314153-009           |
|  |            |      |      | Result                  | Result                  | Result                  | Result                  | Result                  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.11                    | 0.08                    | 5.86                    | 15.0                    | 0.05                    |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.04                    | 0.07                    | 5.97                    | 17.3                    | 0.02                    |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.23                    | 0.59                    | 27.3                    | 105                     | 0.16                    |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02                   | 0.04                    | 0.67                    | 4.88                    | <0.02                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.03                    | 2.10                    | 7.33                    | 79.1                    | 0.25                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                    | <0.1                    | 0.7                     | 1.8                     | <0.1                    |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.17                    | 0.03                    | 2.32                    | 6.71                    | 0.03                    |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.19                    | 0.08                    | 12.3                    | 39.6                    | 0.08                    |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.02                    | 0.04                    | 1.06                    | 3.50                    | <0.02                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.02                    | 0.19                    | 1.00                    | 5.26                    | 0.03                    |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.08                   | <0.05                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |                         |                         |                         |                         |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.08                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.08                   | <0.05                   |





## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW126_202308<br>02 | 0927_MW124_202308<br>01 | 0927_MW130_202308<br>02 | 0927_MW131_202308<br>01 | 0927_MW137_202308<br>01 |
|---|--------------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 02-Aug-2023 17:15       | 01-Aug-2023 16:39       | 02-Aug-2023 17:37       | 01-Aug-2023 17:55       | 01-Aug-2023 18:01       |
| Compound  | CAS Number         | LOR  | Unit | EM2314153-002           | EM2314153-005           | EM2314153-007           | EM2314153-008           | EM2314153-009           |
|   |                    |      |      | Result                  | Result                  | Result                  | Result                  | Result                  |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                         |                         |                         |                         |                         |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.08                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.08                   | <0.05                   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.03                   | <0.02                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                         |                         |                         |                         |                         |
| 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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                         |                         |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | <b>0.81</b>             | <b>3.22</b>             | <b>64.5</b>             | <b>278</b>              | <b>0.62</b>             |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>0.26</b>             | <b>2.69</b>             | <b>34.6</b>             | <b>184</b>              | <b>0.41</b>             |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | <b>0.77</b>             | <b>3.11</b>             | <b>57.9</b>             | <b>256</b>              | <b>0.60</b>             |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                         |                         |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | <b>105</b>              | <b>100</b>              | <b>105</b>              | <b>88.7</b>             | <b>104</b>              |
| 13C8-PFOA   | ---                | 0.02 | %    | <b>103</b>              | <b>102</b>              | <b>102</b>              | <b>94.9</b>             | <b>103</b>              |



### Surrogate Control Limits

| Sub-Matrix: GROUNDWATER       |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| <b>13C4-PFOS</b>              | ---        | 65                  | 140  |
| <b>13C8-PFOA</b>              | ---        | 71                  | 133  |



## QUALITY CONTROL REPORT

|                         |                             |                         |                                    |
|-------------------------|-----------------------------|-------------------------|------------------------------------|
| Work Order              | : EM2314153-AB              | Page                    | : 1 of 6                           |
| Client                  | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact                 | : [REDACTED]                | Contact                 | : [REDACTED]                       |
| Address                 | : [REDACTED]                | Address                 | : [REDACTED]                       |
| Telephone               | : [REDACTED]                | Telephone               | : +6138549 9609                    |
| Project                 | : VIC_0927_PFASOMP_23       | Date Samples Received   | : 04-Aug-2023                      |
| Order number            | : 304300114                 | Date Analysis Commenced | : 08-Aug-2023                      |
| C-O-C number            | : 55355                     | Issue Date              | : 14-Aug-2023                      |
| Sampler                 | : [REDACTED]                |                         |                                    |
| Site                    | : GW - Offsite              |                         |                                    |
| Quote number            | : SY/139/19_Laverton        |                         |                                    |
| No. of samples received | : 5                         |                         |                                    |
| No. of samples analysed | : 5                         |                         |                                    |



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

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

This Quality Control Report contains the following information:

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

### Signatories

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

| Signatories | Position            | Accreditation Category              |
|-------------|---------------------|-------------------------------------|
| [REDACTED]  | 2IC Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

|  |           |   |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|---|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method/Compound   | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5225375)</b>   |           |   |            |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: Perfluorohexane sulfonic acid (PFHxS)                     | 355-46-4   | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorooctane sulfonic acid (PFOS)                      | 1763-23-1  | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutane sulfonic acid (PFBS)                      | 375-73-5   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentane sulfonic acid (PFPeS)                    | 2706-91-4  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS)                    | 375-92-8   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecane sulfonic acid (PFDS)                      | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5225375)</b> |           |   |            |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: Perfluorooctanoic acid (PFOA)                             | 335-67-1   | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoropentanoic acid (PFPeA)                           | 2706-90-3  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorohexanoic acid (PFHxA)                            | 307-24-4   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroheptanoic acid (PFHpA)                           | 375-85-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorononanoic acid (PFNA)                             | 375-95-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorodecanoic acid (PFDA)                             | 335-76-2   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluoroundecanoic acid (PFUnDA)                         | 2058-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorododecanoic acid (PFDoDA)                         | 307-55-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotridecanoic acid (PFTrDA)                        | 72629-94-8 | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)                      | 376-06-7   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: Perfluorobutanoic acid (PFBA)                             | 375-22-4   | 0.1                               | µg/L | <0.1            | <0.1             | 0.0     | No Limit           |
|  |           | <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5225375)</b>      |            |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |



| Sub-Matrix: WATER  |           |  |                    | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|-----------|--|--------------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID | Method: Compound   | CAS Number         | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5225375) - continued</b> |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)        | 31506-32-8         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)         | 4151-50-2          | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE) | 24448-09-7         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)  | 1691-99-2          | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5225375)</b>      |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)            | 757124-72-4        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)            | 27619-97-2         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)            | 39108-34-4         | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)          | 120226-60-0        | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| <b>EP231P: PFAS Sums (QC Lot: 5225375)</b>                               |           |  |                    |                                   |      |                 |                  |         |                    |
| EM2314152-002  | Anonymous | EP231X: Sum of PFAS  | ----               | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Sum of PFHxS and PFOS                                | 355-46-4/1763-23-1 | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |
|  |           | EP231X: Sum of PFAS (WA DER List)                            | ---                | 0.01                              | µg/L | <0.01           | <0.01            | 0.0     | No Limit           |



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

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

Sub-Matrix: **WATER**

|  |            |      |      | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                        |                           |                       |
|--|------------|------|------|-----------------------------|---------------------------------------|------------------------|---------------------------|-----------------------|
|  |            |      |      |                             | Result                                | Spike<br>Concentration | Spike Recovery (%)<br>LCS | Acceptable Limits (%) |
| Method: Compound   | CAS Number | LOR  | Unit | Low                         |                                       |                        |                           | High                  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5225375)</b>      |            |      |      |                             |                                       |                        |                           |                       |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                       | 375-73-5   | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 92.5                   | 72.0                      | 130                   |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                     | 2706-91-4  | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 99.0                   | 71.0                      | 127                   |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                      | 355-46-4   | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 95.3                   | 68.0                      | 131                   |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                     | 375-92-8   | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 96.6                   | 69.0                      | 134                   |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                       | 1763-23-1  | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 91.8                   | 65.0                      | 140                   |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                       | 335-77-3   | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 89.6                   | 53.0                      | 142                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5225375)</b>    |            |      |      |                             |                                       |                        |                           |                       |
| EP231X: Perfluorobutanoic acid (PFBA)                              | 375-22-4   | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 88.8                   | 73.0                      | 129                   |
| EP231X: Perfluoropentanoic acid (PFPeA)                            | 2706-90-3  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.3                   | 72.0                      | 129                   |
| EP231X: Perfluorohexanoic acid (PFHxA)                             | 307-24-4   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.4                   | 72.0                      | 129                   |
| EP231X: Perfluoroheptanoic acid (PFHpA)                            | 375-85-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.2                   | 72.0                      | 130                   |
| EP231X: Perfluorooctanoic acid (PFOA)                              | 335-67-1   | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 94.0                   | 71.0                      | 133                   |
| EP231X: Perfluorononanoic acid (PFNA)                              | 375-95-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.9                   | 69.0                      | 130                   |
| EP231X: Perfluorodecanoic acid (PFDA)                              | 335-76-2   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.2                   | 71.0                      | 129                   |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                          | 2058-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 99.8                   | 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                             | 94.5                   | 65.0                      | 144                   |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                       | 376-06-7   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 103                    | 71.0                      | 132                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5225375)</b>        |            |      |      |                             |                                       |                        |                           |                       |
| EP231X: Perfluorooctane sulfonamide (FOSA)                         | 754-91-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.1                   | 67.0                      | 137                   |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)              | 31506-32-8 | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 111                    | 68.0                      | 141                   |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)               | 4151-50-2  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 112                    | 70.0                      | 130                   |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)       | 24448-09-7 | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 90.4                   | 70.0                      | 130                   |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)        | 1691-99-2  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 104                    | 70.0                      | 130                   |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)  | 2355-31-9  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.2                   | 65.0                      | 136                   |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)   | 2991-50-6  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 88.1                   | 61.0                      | 135                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5225375)</b> |            |      |      |                             |                                       |                        |                           |                       |



Sub-Matrix: **WATER**

| Method: Compound   | CAS Number             | LOR  | Unit | Method Blank (MB) Report Result | Laboratory Control Spike (LCS) Report |                    |                       |      |
|--|------------------------|------|------|---------------------------------|---------------------------------------|--------------------|-----------------------|------|
|  |                        |      |      |                                 | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |      |
|  |                        |      |      |                                 |                                       | LCS                | Low                   | High |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5225375) - continued</b> |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                              | 757124-72-4            | 0.05 | µg/L | <0.05                           | 0.234 µg/L                            | 98.7               | 63.0                  | 143  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                              | 27619-97-2             | 0.05 | µg/L | <0.05                           | 0.238 µg/L                            | 101                | 64.0                  | 140  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                              | 39108-34-4             | 0.05 | µg/L | <0.05                           | 0.24 µg/L                             | 96.3               | 67.0                  | 138  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                           | 0.242 µg/L                            | 77.7               | 70.0                  | 130  |
| <b>EP231P: PFAS Sums (QCLot: 5225375)</b>                                      |                        |      |      |                                 |                                       |                    |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ---                | ---                   | ---  |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                           | ----                                  | ---                | ---                   | ---  |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                           | ----                                  | ---                | ---                   | ---  |

### Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number | Matrix Spike (MS) Report |                   |                       |      |
|---|-----------|---|------------|--------------------------|-------------------|-----------------------|------|
|   |           |   |            | Spike Concentration      | Spike Recovery(%) | Acceptable Limits (%) |      |
|   |           |   |            |                          | MS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5225375)</b>   |           |   |            |                          |                   |                       |      |
| EM2314152-002   | Anonymous | EP231X: Perfluorobutane sulfonic acid (PFBS)                | 375-73-5   | 0.222 µg/L               | 90.8              | 72.0                  | 130  |
|   |           | EP231X: Perfluoropentane sulfonic acid (PFPeS)              | 2706-91-4  | 0.235 µg/L               | 89.5              | 71.0                  | 127  |
|   |           | EP231X: Perfluorohexane sulfonic acid (PFHxS)               | 355-46-4   | 0.228 µg/L               | 89.7              | 68.0                  | 131  |
|   |           | EP231X: Perfluoroheptane sulfonic acid (PFHpS)              | 375-92-8   | 0.238 µg/L               | 94.2              | 69.0                  | 134  |
|   |           | EP231X: Perfluorooctane sulfonic acid (PFOS)                | 1763-23-1  | 0.232 µg/L               | 87.6              | 65.0                  | 140  |
|   |           | EP231X: Perfluorodecane sulfonic acid (PFDS)                | 335-77-3   | 0.241 µg/L               | 87.4              | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5225375)</b> |           |   |            |                          |                   |                       |      |
| EM2314152-002   | Anonymous | EP231X: Perfluorobutanoic acid (PFBA)                       | 375-22-4   | 1.25 µg/L                | 81.0              | 73.0                  | 129  |
|   |           | EP231X: Perfluoropentanoic acid (PFPeA)                     | 2706-90-3  | 0.25 µg/L                | 87.9              | 72.0                  | 129  |
|   |           | EP231X: Perfluorohexanoic acid (PFHxA)                      | 307-24-4   | 0.25 µg/L                | 88.4              | 72.0                  | 129  |
|   |           | EP231X: Perfluoroheptanoic acid (PFHpA)                     | 375-85-9   | 0.25 µg/L                | 89.4              | 72.0                  | 130  |
|   |           | EP231X: Perfluorooctanoic acid (PFOA)                       | 335-67-1   | 0.25 µg/L                | 96.0              | 71.0                  | 133  |
|   |           | EP231X: Perfluorononanoic acid (PFNA)                       | 375-95-1   | 0.25 µg/L                | 91.7              | 69.0                  | 130  |
|   |           | EP231X: Perfluorodecanoic acid (PFDA)                       | 335-76-2   | 0.25 µg/L                | 91.5              | 71.0                  | 129  |
|   |           | EP231X: Perfluoroundecanoic acid (PFUnDA)                   | 2058-94-8  | 0.25 µg/L                | 93.5              | 69.0                  | 133  |
|   |           | EP231X: Perfluorododecanoic acid (PFDoDA)                   | 307-55-1   | 0.25 µg/L                | 94.9              | 72.0                  | 134  |
|   |           | EP231X: Perfluorotridecanoic acid (PFTrDA)                  | 72629-94-8 | 0.25 µg/L                | 83.0              | 65.0                  | 144  |
|   |           | EP231X: Perfluorotetradecanoic acid (PFTeDA)                | 376-06-7   | 0.625 µg/L               | 91.4              | 71.0                  | 132  |
|   |           | <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5225375)</b> |            |                          |                   |                       |      |



Sub-Matrix: **WATER**

|   |           |   |             | Matrix Spike (MS) Report |                  |                       |      |
|---|-----------|---|-------------|--------------------------|------------------|-----------------------|------|
|   |           |   |             | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID | Method: Compound  | CAS Number  | Concentration            | MS               | Low                   | High |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5225375) - continued</b> |           |   |             |                          |                  |                       |      |
| EM2314152-002   | Anonymous | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6    | 0.25 µg/L                | 88.6             | 67.0                  | 137  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.625 µg/L               | 91.6             | 68.0                  | 141  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.625 µg/L               | 83.1             | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 88.7             | 70.0                  | 130  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 91.7             | 70.0                  | 130  |
|   |           | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 96.3             | 65.0                  | 136  |
|   |           | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 98.4             | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5225375)</b>      |           |   |             |                          |                  |                       |      |
| EM2314152-002   | Anonymous | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 95.5             | 63.0                  | 143  |
|   |           | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 99.1             | 64.0                  | 140  |
|   |           | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 105              | 67.0                  | 138  |
|   |           | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | 71.0             | 70.0                  | 130  |





## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2314153                 | Page                    | : 1 of 5                           |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : [REDACTED]                       |
| Project      | : VIC_0927_PFASOMP_23       | Date Samples Received   | : 04-Aug-2023                      |
| Site         | : GW - Offsite              | Issue Date              | : 14-Aug-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 9                                |
| Order number | : 304300114                 | No. of samples analysed | : 9                                |

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



### Outliers : Frequency of Quality Control Samples

Matrix: WATER

| Quality Control Sample Type<br>Method   | Count |         | Rate (%) |          | Quality Control Specification  |
|---|-------|---------|----------|----------|--------------------------------|
|   | QC    | Regular | Actual   | Expected |                                |
| Laboratory Duplicates (DUP)<br>Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 1     | 13      | 7.69     | 10.00    | NEPM 2013 B3 & ALS QC Standard |

### Analysis Holding Time Compliance

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

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

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

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

Matrix: WATER

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date                                  | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW124_20230801,<br>0927_MW131_20230801,                        | 0927_MW229_20230801,<br>0927_MW137_20230801  | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW123_20230802,<br>0927_MW228_20230802,<br>0927_MW130_20230802 | 0927_MW126_20230802,<br>0927_MW121_20230802, | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW124_20230801,<br>0927_MW131_20230801,                        | 0927_MW229_20230801,<br>0927_MW137_20230801  | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW123_20230802,<br>0927_MW228_20230802,<br>0927_MW130_20230802 | 0927_MW126_20230802,<br>0927_MW121_20230802, | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>   |  |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW124_20230801,<br>0927_MW131_20230801,                        | 0927_MW229_20230801,<br>0927_MW137_20230801  | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW123_20230802,<br>0927_MW228_20230802,<br>0927_MW130_20230802 | 0927_MW126_20230802,<br>0927_MW121_20230802, | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)   | Sample Date                                  | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>   |  |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW124_20230801,<br>0927_MW131_20230801,                        | 0927_MW229_20230801,<br>0927_MW137_20230801  | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW123_20230802,<br>0927_MW228_20230802,<br>0927_MW130_20230802 | 0927_MW126_20230802,<br>0927_MW121_20230802, | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>EP231P: PFAS Sums</b>  |  |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW124_20230801,<br>0927_MW131_20230801,                        | 0927_MW229_20230801,<br>0927_MW137_20230801  | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW123_20230802,<br>0927_MW228_20230802,<br>0927_MW130_20230802 | 0927_MW126_20230802,<br>0927_MW121_20230802, | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 13      | 7.69     | 10.00    | ✖          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 13      | 7.69     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 13      | 7.69     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 13      | 7.69     | 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.

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Solid Phase Extraction (SPE) for PFAS in water       | ORG72         | WATER         | In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.  |



# CHAIN OF CUSTODY

COC#: 55355

ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

DATE TIME:

DATE TIME:

DATE TIME:

RECEIVED BY: [Redacted]

DATE TIME: 4/18/23

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: 0927\_PFASOMP\_23

SITE: GW - Offsite

ORDER NO: 304300114

PROJECT MANAGER: [Redacted]

PRIMARY SAMPLER: [Redacted]

EMAIL REPORTS TO: [Redacted]

EMAIL INVOICES TO: [Redacted]

CONTACT PH: [Redacted]

SAMPLER MOBILE:

QUOTE NO: SY/139/19\_Laverton

/ EM2023MWHAUS000  
2

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: C

Other comments:

**SAMPLE DETAILS****ANALYSIS REQUIRED**

| SAMPLE | NAME                | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | Analysis NOT REQUIRED | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
|--------|---------------------|-------------|------------------------|--------|----------------------|---------|-----------------------|-------------------|----------------------|------------------------|
| 001    | 0927_MW123_20230802 |             | 02/08/2023<br>04:45 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 002    | 0927_MW126_20230802 |             | 02/08/2023<br>05:15 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 003    | 0927_MW228_20230802 |             | 02/08/2023<br>04:53 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 004    | 0927_MW121_20230802 |             | 02/08/2023<br>05:16 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 005    | 0927_MW124_20230801 |             | 01/08/2023<br>04:39 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 006    | 0927_MW229_20230801 |             | 01/08/2023<br>06:04 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 007    | 0927_MW130_20230802 |             | 02/08/2023<br>05:37 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 008    | 0927_MW131_20230801 |             | 01/08/2023<br>05:55 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 009    | 0927_MW137_20230801 |             | 01/08/2023<br>06:01 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |

Environmental Division  
Melbourne  
Work Order Reference  
**EM2314153**





## CERTIFICATE OF ANALYSIS

Work Order : **EM2314161**  
Client : **STANTEC AUSTRALIA PTY LTD**  
Contact : [REDACTED]  
Address : [REDACTED]  
Telephone : [REDACTED]  
Project : VIC\_0927\_PFASOMP\_23  
Order number : 304300114  
C-O-C number : 55354  
Sampler : [REDACTED]  
Site : GW - Onsite  
Quote number : SY/139/19\_Laverton  
No. of samples received : 38  
No. of samples analysed : 35

Page : 1 of 19  
Laboratory : Environmental Division Melbourne  
Contact : [REDACTED]  
Address : [REDACTED]  
Telephone : [REDACTED]  
Date Samples Received : 04-Aug-2023 13:15  
Date Analysis Commenced : 08-Aug-2023  
Issue Date : 11-Aug-2023 18:07



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

| Signatories | Position         | Accreditation Category              |
|-------------|------------------|-------------------------------------|
| [REDACTED]  | LCMS Coordinator | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X: Poor matrix spike recovery for sample EM2314161-012 due to sample matrix interference. Confirmed by re-analysis.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231X: Poor matrix spike recovery for sample EM2314161-011 due to sample matrix interference.
- EP231X: Samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.





## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW115_202308<br>02 | 0927_MW144_202308<br>01<br>Lab internal QC | 0927_MW146_202308<br>01 | 0927_MW217_202308<br>01 | 0927_MW117_202308<br>01 |
|--|------------|------|------|-------------------------|--|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 02-Aug-2023 17:40       | 01-Aug-2023 16:48                          | 01-Aug-2023 16:51       | 01-Aug-2023 16:56       | 01-Aug-2023 18:06       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314161-001<br>Result | EM2314161-002<br>Result                    | EM2314161-003<br>Result | EM2314161-004<br>Result | EM2314161-005<br>Result |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |  |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02                   | 0.07                                       | 0.06                    | <0.02                   | 4.07                    |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                   | 0.07                                       | 0.07                    | <0.02                   | 4.31                    |
| Perfluorohexane sulfonic acid (PFHxS)          | 355 46 4   | 0.01 | µg/L | <0.01                   | 0.55                                       | 0.49                    | 0.07                    | 29.4                    |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375 92 8   | 0.02 | µg/L | <0.02                   | 0.02                                       | <0.02                   | <0.02                   | 0.74                    |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.01                    | 0.86                                       | 1.00                    | 0.02                    | 13.4                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                                      | <0.02                   | <0.02                   | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |  |                         |                         |                         |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                    | <0.1                                       | <0.1                    | <0.1                    | 0.5                     |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                   | 0.03                                       | <0.02                   | <0.02                   | 1.54                    |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02                   | 0.09                                       | 0.08                    | <0.02                   | 7.72                    |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                   | <0.02                                      | <0.02                   | <0.02                   | 0.64                    |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01                   | 0.02                                       | 0.02                    | <0.01                   | 0.89                    |
| 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                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |  |                         |                         |                         |
| 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: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW115_202308<br>02 | 0927_MW144_202308<br>01<br>Lab internal QC | 0927_MW146_202308<br>01 | 0927_MW217_202308<br>01 | 0927_MW117_202308<br>01 |
|---|--------------------|------|------|-------------------------|--|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 02-Aug-2023 17:40       | 01-Aug-2023 16:48                          | 01-Aug-2023 16:51       | 01-Aug-2023 16:56       | 01-Aug-2023 18:06       |
| Compound  | CAS Number         | LOR  | Unit | EM2314161-001<br>Result | EM2314161-002<br>Result                    | EM2314161-003<br>Result | EM2314161-004<br>Result | EM2314161-005<br>Result |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                         |  |                         |                         |                         |
| 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                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                         |  |                         |                         |                         |
| 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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                         |  |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | 0.01                    | 1.71                                       | 1.72                    | 0.09                    | 63.2                    |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 0.01                    | 1.41                                       | 1.49                    | 0.09                    | 42.8                    |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | 0.01                    | 1.62                                       | 1.65                    | 0.09                    | 58.2                    |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                         |  |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | 102                     | 103  | 101                     | 104                     | 101                     |
| 13C8-PFOA   | ---                | 0.02 | %    | 100                     | 103  | 99.6                    | 100                     | 98.3                    |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW118_202308<br>01<br>MW118 | 0927_MW163_202308<br>01 | 0927_MW207_202308<br>01 | 0927_MW208_202308<br>01 | 0927_MW211_202308<br>01 |
|--|------------|------|------|----------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 01-Aug-2023 16:52                | 01-Aug-2023 18:05       | 01-Aug-2023 17:56       | 01-Aug-2023 16:47       | 01-Aug-2023 18:01       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314161-006<br>Result          | EM2314161-007<br>Result | EM2314161-008<br>Result | EM2314161-009<br>Result | EM2314161-010<br>Result |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                                  |                         |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 3.61                             | 30.0                    | 0.66                    | 2.37                    | 0.07                    |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 4.62                             | 38.0                    | 0.99                    | 2.84                    | 0.07                    |
| Perfluorohexane sulfonic acid (PFHxS)          | 355 46 4   | 0.01 | µg/L | 32.3                             | 278                     | 8.60                    | 19.6                    | 0.46                    |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375 92 8   | 0.02 | µg/L | 1.42                             | 29.8                    | 0.58                    | 1.61                    | <0.02                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 25.7                             | 523                     | 12.0                    | 61.8                    | 0.10                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                            | 0.23                    | <0.02                   | 0.11                    | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                                  |                         |                         |                         |                         |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | 0.4                              | 3.6                     | 0.1                     | 0.4                     | <0.1                    |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 1.42                             | 11.6                    | 0.29                    | 0.87                    | 0.02                    |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 7.33                             | 66.4                    | 1.46                    | 4.16                    | 0.08                    |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.72                             | 7.89                    | 0.21                    | 0.56                    | <0.02                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 1.30                             | 18.8                    | 0.40                    | 1.14                    | 0.01                    |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                            | 0.11                    | <0.02                   | <0.02                   | <0.02                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                            | <0.04                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                            | <0.04                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                            | <0.04                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                            | <0.04                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                            | <0.09                   | <0.05                   | <0.05                   | <0.05                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                                  |                         |                         |                         |                         |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                            | 0.49                    | <0.02                   | 0.24                    | <0.02                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                            | <0.09                   | <0.05                   | <0.05                   | <0.05                   |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW118_202308<br>01<br>MW118 | 0927_MW163_202308<br>01 | 0927_MW207_202308<br>01 | 0927_MW208_202308<br>01 | 0927_MW211_202308<br>01 |
|---|--------------------|------|------|----------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 01-Aug-2023 16:52                | 01-Aug-2023 18:05       | 01-Aug-2023 17:56       | 01-Aug-2023 16:47       | 01-Aug-2023 18:01       |
| Compound  | CAS Number         | LOR  | Unit | EM2314161-006                    | EM2314161-007           | EM2314161-008           | EM2314161-009           | EM2314161-010           |
|   |                    |      |      | Result                           | Result                  | Result                  | Result                  | Result                  |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                                  |                         |                         |                         |                         |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2          | 0.05 | µg/L | <0.05                            | <0.09                   | <0.05                   | <0.05                   | <0.05                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05                            | <0.09                   | <0.05                   | <0.05                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05                            | <0.09                   | <0.05                   | <0.05                   | <0.05                   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02                            | <0.04                   | <0.02                   | <0.02                   | <0.02                   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02                            | <0.04                   | <0.02                   | <0.02                   | <0.02                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                                  |                         |                         |                         |                         |
| 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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                                  |                         |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | 78.8                             | 1010                    | 25.3                    | 95.7                    | 0.81                    |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 58.0                             | 801                     | 20.6                    | 81.4                    | 0.56                    |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | 72.8                             | 939                     | 23.7                    | 90.9                    | 0.74                    |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                                  |                         |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | 92.4                             | 95.7                    | 99.1                    | 107                     | 102                     |
| 13C8-PFOA   | ---                | 0.02 | %    | 97.9                             | 96.4                    | 96.5                    | 99.5                    | 96.7                    |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW105_202308<br>02<br>Lab internal QC | 0927_MW107_202308<br>01<br>Internal Lab QC | 0927_MW109_202308<br>01 | 0927_MW102_202308<br>01 | 0927_MW103_202308<br>02 |
|--|------------|------|------|--|--|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 02-Aug-2023 17:10                          | 01-Aug-2023 16:38                          | 01-Aug-2023 18:07       | 01-Aug-2023 16:57       | 02-Aug-2023 17:26       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314161-011<br>Result                    | EM2314161-012<br>Result                    | EM2314161-013<br>Result | EM2314161-014<br>Result | EM2314161-015<br>Result |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |  |  |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 9.39                                       | 0.62                                       | 0.04                    | 1.15                    | 2.58                    |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 12.1                                       | 0.70                                       | 0.05                    | 1.23                    | 2.34                    |
| Perfluorohexane sulfonic acid (PFHxS)          | 355 46 4   | 0.01 | µg/L | 82.5                                       | 5.12                                       | 0.41                    | 8.05                    | 12.2                    |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375 92 8   | 0.02 | µg/L | 3.28                                       | 0.12                                       | <0.02                   | 0.64                    | 0.44                    |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 51.7                                       | 0.43                                       | 0.47                    | 10.1                    | 9.46                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                                      | <0.02                                      | <0.02                   | <0.02                   | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |  |  |                         |                         |                         |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | 1.8  | <0.1                                       | <0.1                    | 0.2                     | 0.3                     |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 5.58                                       | 0.20                                       | <0.02                   | 0.46                    | 0.85                    |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 33.2                                       | 1.08                                       | 0.06                    | 1.90                    | 3.69                    |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 2.19                                       | 0.15                                       | <0.02                   | 0.24                    | 0.26                    |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 3.20                                       | 0.17                                       | 0.02                    | 0.39                    | 0.47                    |
| 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                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |  |  |                         |                         |                         |
| 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: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW105_202308<br>02<br>Lab internal QC | 0927_MW107_202308<br>01<br>Internal Lab QC | 0927_MW109_202308<br>01 | 0927_MW102_202308<br>01 | 0927_MW103_202308<br>02 |
|---|--------------------|------|------|--|--|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 02-Aug-2023 17:10                          | 01-Aug-2023 16:38                          | 01-Aug-2023 18:07       | 01-Aug-2023 16:57       | 02-Aug-2023 17:26       |
| Compound  | CAS Number         | LOR  | Unit | EM2314161-011<br>Result                    | EM2314161-012<br>Result                    | EM2314161-013<br>Result | EM2314161-014<br>Result | EM2314161-015<br>Result |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |  |  |                         |                         |                         |
| 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                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |  |  |                         |                         |                         |
| 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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |  |  |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | 205  | 8.59                                       | 1.05                    | 24.4                    | 32.6                    |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 134  | 5.55                                       | 0.88                    | 18.2                    | 21.7                    |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | 190  | 7.77                                       | 1.00                    | 22.5                    | 29.8                    |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |  |  |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | 105  | 106  | 105                     | 101                     | 102                     |
| 13C8-PFOA   | ---                | 0.02 | %    | 99.9                                       | 97.2                                       | 97.6                    | 97.9                    | 100                     |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW120_202308<br>02 | 0927_MW152_202308<br>01 | 0927_MW155_202308<br>01 | 0927_MW182_202308<br>01 | 0927_MW185_202308<br>02 |
|--|------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 02-Aug-2023 17:35       | 01-Aug-2023 16:43       | 01-Aug-2023 16:45       | 01-Aug-2023 17:59       | 02-Aug-2023 17:38       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314161-016           | EM2314161-017           | EM2314161-018           | EM2314161-019           | EM2314161-020           |
|  |            |      |      | Result                  | Result                  | Result                  | Result                  | Result                  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.68                    | 1.20                    | 0.06                    | 0.25                    | 0.07                    |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.68                    | 1.20                    | 0.08                    | 0.26                    | 0.11                    |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 3.91                    | 4.93                    | 0.62                    | 2.03                    | 1.02                    |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.19                    | 0.24                    | 0.04                    | 0.06                    | 0.05                    |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 4.56                    | 4.84                    | 1.36                    | 0.79                    | 1.60                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |                         |                         |                         |                         |
| 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 | 0.33                    | 0.32                    | 0.26                    | 0.06                    | 0.04                    |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 1.26                    | 1.11                    | 0.26                    | 0.32                    | 0.15                    |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.12                    | 0.18                    | 0.15                    | 0.02                    | 0.02                    |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.21                    | 0.20                    | 0.14                    | 0.05                    | 0.04                    |
| 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                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |                         |                         |                         |                         |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | <0.02                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | <0.05                   |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW120_202308<br>02 | 0927_MW152_202308<br>01 | 0927_MW155_202308<br>01 | 0927_MW182_202308<br>01 | 0927_MW185_202308<br>02 |
|---|--------------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 02-Aug-2023 17:35       | 01-Aug-2023 16:43       | 01-Aug-2023 16:45       | 01-Aug-2023 17:59       | 02-Aug-2023 17:38       |
| Compound  | CAS Number         | LOR  | Unit | EM2314161-016<br>Result | EM2314161-017<br>Result | EM2314161-018<br>Result | EM2314161-019<br>Result | EM2314161-020<br>Result |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                         |                         |                         |                         |                         |
| 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                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                         |                         |                         |                         |                         |
| 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                   | 0.07                    | <0.05                   | <0.05                   |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05                   | <0.05                   | 0.12                    | <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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                         |                         |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | 12.0                    | 14.2                    | 3.16                    | 3.84                    | 3.10                    |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 8.47                    | 9.77                    | 1.98                    | 2.82                    | 2.62                    |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | 11.2                    | 12.8                    | 3.04                    | 3.52                    | 2.94                    |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                         |                         |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | 96.5                    | 100                     | 99.3                    | 98.1                    | 102                     |
| 13C8-PFOA   | ---                | 0.02 | %    | 97.1                    | 101                     | 101                     | 96.6                    | 98.1                    |





## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW192_202308<br>02 | 0927_MW200_202308<br>01 | 0927_MW110_202308<br>02 | 0927_MW138_202308<br>01 | 0927_MW139_202308<br>01 |
|--|------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 02-Aug-2023 17:29       | 01-Aug-2023 16:35       | 02-Aug-2023 17:39       | 01-Aug-2023 16:46       | 01-Aug-2023 18:02       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314161-021           | EM2314161-022           | EM2314161-023           | EM2314161-024           | EM2314161-025           |
|  |            |      |      | Result                  | Result                  | Result                  | Result                  | Result                  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.08                    | 0.93                    | 3.22                    | 0.97                    | 2.40                    |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.10                    | 0.76                    | 4.84                    | 1.15                    | 4.14                    |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.90                    | 4.43                    | 33.8                    | 8.11                    | 29.7                    |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | 0.04                    | 0.25                    | 2.10                    | 0.41                    | 0.62                    |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 1.91                    | 7.68                    | 62.0                    | 9.86                    | 10.5                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.03                   | <0.02                   | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |                         |                         |                         |                         |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                    | 0.1                     | 0.3                     | 0.1                     | 0.3                     |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | 0.03                    | 0.33                    | 1.12                    | 0.27                    | 1.18                    |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.15                    | 1.77                    | 7.00                    | 1.52                    | 7.89                    |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | 0.02                    | 0.25                    | 0.63                    | 0.17                    | 0.55                    |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.04                    | 0.23                    | 1.28                    | 0.32                    | 0.90                    |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.03                   | <0.02                   | <0.02                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.03                   | <0.02                   | <0.02                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.03                   | <0.02                   | <0.02                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.03                   | <0.02                   | <0.02                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                   | <0.02                   | <0.03                   | <0.02                   | <0.02                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                   | <0.05                   | <0.08                   | <0.05                   | <0.05                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |                         |                         |                         |                         |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                   | 0.02                    | <0.03                   | <0.02                   | <0.02                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                   | <0.05                   | <0.08                   | <0.05                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                   | <0.05                   | <0.08                   | <0.05                   | <0.05                   |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW192_202308<br>02 | 0927_MW200_202308<br>01 | 0927_MW110_202308<br>02 | 0927_MW138_202308<br>01 | 0927_MW139_202308<br>01 |
|---|--------------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 02-Aug-2023 17:29       | 01-Aug-2023 16:35       | 02-Aug-2023 17:39       | 01-Aug-2023 16:46       | 01-Aug-2023 18:02       |
| Compound  | CAS Number         | LOR  | Unit | EM2314161-021<br>Result | EM2314161-022<br>Result | EM2314161-023<br>Result | EM2314161-024<br>Result | EM2314161-025<br>Result |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                         |                         |                         |                         |                         |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05                   | <0.05                   | <0.08                   | <0.05                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05                   | <0.05                   | <0.08                   | <0.05                   | <0.05                   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02                   | <0.02                   | <0.03                   | <0.02                   | <0.02                   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02                   | <0.02                   | <0.03                   | <0.02                   | <0.02                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                         |                         |                         |                         |                         |
| 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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                         |                         |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | 3.27                    | 16.8                    | 116                     | 22.9                    | 58.2                    |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 2.81                    | 12.1                    | 95.8                    | 18.0                    | 40.2                    |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | 3.13                    | 15.7                    | 109                     | 21.3                    | 53.4                    |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                         |                         |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | 112                     | 112                     | 95.6                    | 119                     | 90.0                    |
| 13C8-PFOA   | ---                | 0.02 | %    | 99.0                    | 104                     | 84.0                    | 102                     | 92.4                    |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_MW140_202308<br>01<br>Internal Lab QC | 0927_QC101_202308<br>01 | 0927_QC100_202308<br>01 | 0927_QC102_202308<br>01 | 0927_QC103_202308<br>01 |
|--|------------|------|------|--|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                           |            |      |      | 01-Aug-2023 16:41                          | 01-Aug-2023 16:55       | 01-Aug-2023 17:54       | 01-Aug-2023 17:57       | 01-Aug-2023 18:00       |
| Compound                                       | CAS Number | LOR  | Unit | EM2314161-026<br>Result                    | EM2314161-027<br>Result | EM2314161-029<br>Result | EM2314161-030<br>Result | EM2314161-031<br>Result |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |  |                         |                         |                         |                         |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | 0.07                                       | 1.82                    | 0.68                    | 3.35                    | 0.07                    |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | 0.07                                       | 2.24                    | 1.01                    | 3.75                    | 0.07                    |
| Perfluorohexane sulfonic acid (PFHxS)          | 355 46 4   | 0.01 | µg/L | 0.55                                       | 15.7                    | 8.42                    | 25.1                    | 0.44                    |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375 92 8   | 0.02 | µg/L | <0.02                                      | 1.26                    | 0.58                    | 1.13                    | <0.02                   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.73                                       | 43.6                    | 11.3                    | 21.5                    | 0.08                    |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                                      | 0.05                    | <0.02                   | <0.02                   | <0.02                   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |  |                         |                         |                         |                         |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                                       | 0.2                     | <0.1                    | 0.3                     | <0.1                    |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                                      | 0.62                    | 0.24                    | 1.15                    | <0.02                   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.09                                       | 3.20                    | 1.28                    | 5.86                    | 0.07                    |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                                      | 0.41                    | 0.21                    | 0.60                    | <0.02                   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.02                                       | 0.85                    | 0.39                    | 1.16                    | 0.01                    |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                                      | <0.03                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                                      | <0.03                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                                      | <0.03                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                                      | <0.03                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                                      | <0.03                   | <0.02                   | <0.02                   | <0.02                   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                                      | <0.08                   | <0.05                   | <0.05                   | <0.05                   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |  |                         |                         |                         |                         |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                                      | 0.18                    | <0.02                   | 0.03                    | <0.02                   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                                      | <0.08                   | <0.05                   | <0.05                   | <0.05                   |



## Analytical Results

Sub-Matrix: GROUNDWATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_MW140_202308<br>01<br>Internal Lab QC | 0927_QC101_202308<br>01 | 0927_QC100_202308<br>01 | 0927_QC102_202308<br>01 | 0927_QC103_202308<br>01 |
|---|--------------------|------|------|--|-------------------------|-------------------------|-------------------------|-------------------------|
| Sampling date / time                                      |                    |      |      | 01-Aug-2023 16:41                          | 01-Aug-2023 16:55       | 01-Aug-2023 17:54       | 01-Aug-2023 17:57       | 01-Aug-2023 18:00       |
| Compound  | CAS Number         | LOR  | Unit | EM2314161-026                              | EM2314161-027           | EM2314161-029           | EM2314161-030           | EM2314161-031           |
|   |                    |      |      | Result                                     | Result                  | Result                  | Result                  | Result                  |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |  |                         |                         |                         |                         |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2          | 0.05 | µg/L | <0.05                                      | <0.08                   | <0.05                   | <0.05                   | <0.05                   |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05                                      | <0.08                   | <0.05                   | <0.05                   | <0.05                   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05                                      | <0.08                   | <0.05                   | <0.05                   | <0.05                   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02                                      | <0.03                   | <0.02                   | <0.02                   | <0.02                   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02                                      | <0.03                   | <0.02                   | <0.02                   | <0.02                   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |  |                         |                         |                         |                         |
| 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                   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |  |                         |                         |                         |                         |
| Sum of PFAS   | ---                | 0.01 | µg/L | 1.53                                       | 70.1                    | 24.1                    | 63.9                    | 0.74                    |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | 1.28                                       | 59.3                    | 19.7                    | 46.6                    | 0.52                    |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | 1.46                                       | 66.4                    | 22.5                    | 59.0                    | 0.67                    |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |  |                         |                         |                         |                         |
| 13C4-PFOS   | ---                | 0.02 | %    | 93.2                                       | 92.4                    | 112                     | 109                     | 111                     |
| 13C8-PFOA   | ---                | 0.02 | %    | 83.0                                       | 82.8                    | 98.8                    | 99.1                    | 100                     |



## Analytical Results

Sub-Matrix: RINSATE  
 (Matrix: WATER)

Sample ID

|  |            |      |      | 0927_QC301_202308<br>01 | 0927_QC303_202308<br>02 | 0927_QC305_202308<br>03 | ---   | ---   |
|--|------------|------|------|-------------------------|-------------------------|-------------------------|-------|-------|
| Sampling date / time                           |            |      |      | 01-Aug-2023 17:52       | 02-Aug-2023 16:51       | 03-Aug-2023 13:06       | ---   | ---   |
| Compound                                       | CAS Number | LOR  | Unit | EM2314161-028<br>Result | EM2314161-033<br>Result | EM2314161-036<br>Result | ----- | ----- |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |                         |                         |       |       |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | <0.01                   | <0.01                   | <0.01                   | ---   | ---   |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | <0.01                   | <0.01                   | <0.01                   | ---   | ---   |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |                         |                         |       |       |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                    | <0.1                    | <0.1                    | ---   | ---   |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | <0.01                   | <0.01                   | <0.01                   | ---   | ---   |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | ---   | ---   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |                         |                         |       |       |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | ---   | ---   |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | ---   | ---   |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | ---   | ---   |



## Analytical Results

| Sub-Matrix: RINSATE<br>(Matrix: WATER)                    |                    |      |      | Sample ID | 0927_QC301_202308<br>01 | 0927_QC303_202308<br>02 | 0927_QC305_202308<br>03 | ---   | ---   |
|---|--------------------|------|------|-----------|-------------------------|-------------------------|-------------------------|-------|-------|
| Sampling date / time                                      |                    |      |      |           | 01-Aug-2023 17:52       | 02-Aug-2023 16:51       | 03-Aug-2023 13:06       | ---   | ---   |
| Compound  | CAS Number         | LOR  | Unit |           | EM2314161-028           | EM2314161-033           | EM2314161-036           | ----- | ----- |
|   |                    |      |      | Result    | Result                  | Result                  | ---                     | ---   |       |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |           |                         |                         |                         |       |       |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05     | <0.05                   | <0.05                   |                         | ---   | ---   |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05     | <0.05                   | <0.05                   |                         | ---   | ---   |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02     | <0.02                   | <0.02                   |                         | ---   | ---   |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02     | <0.02                   | <0.02                   |                         | ---   | ---   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |           |                         |                         |                         |       |       |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05     | <0.05                   | <0.05                   |                         | ---   | ---   |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05     | <0.05                   | <0.05                   |                         | ---   | ---   |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05     | <0.05                   | <0.05                   |                         | ---   | ---   |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05     | <0.05                   | <0.05                   |                         | ---   | ---   |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |           |                         |                         |                         |       |       |
| Sum of PFAS   | ---                | 0.01 | µg/L | <0.01     | <0.01                   | <0.01                   |                         | ---   | ---   |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <0.01     | <0.01                   | <0.01                   |                         | ---   | ---   |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | <0.01     | <0.01                   | <0.01                   |                         | ---   | ---   |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |           |                         |                         |                         |       |       |
| 13C4-PFOS   | ---                | 0.02 | %    | 111       | 108                     | 116                     |                         | ---   | ---   |
| 13C8-PFOA   | ---                | 0.02 | %    | 96.7      | 96.8                    | 98.4                    |                         | ---   | ---   |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)           |            | Sample ID         |      | 0927_QC500_202308<br>03 | 0927_QC501_202308<br>03 | --- | --- | --- |
|--|------------|-------------------|------|-------------------------|-------------------------|-----|-----|-----|
| Sampling date / time                           |            | 03-Aug-2023 13:29 |      | 03-Aug-2023 13:30       |                         | --- | --- | --- |
| Compound                                       | CAS Number | LOR               | Unit | EM2314161-037<br>Result | EM2314161-038<br>Result | --- | --- | --- |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |                   |      |                         |                         |     |     |     |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01              | µg/L | <0.01                   | <0.01                   | --- | --- | --- |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01              | µg/L | <0.01                   | <0.01                   | --- | --- | --- |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |                   |      |                         |                         |     |     |     |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1               | µg/L | <0.1                    | <0.1                    | --- | --- | --- |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01              | µg/L | <0.01                   | <0.01                   | --- | --- | --- |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05              | µg/L | <0.05                   | <0.05                   | --- | --- | --- |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |                   |      |                         |                         |     |     |     |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02              | µg/L | <0.02                   | <0.02                   | --- | --- | --- |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05              | µg/L | <0.05                   | <0.05                   | --- | --- | --- |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05              | µg/L | <0.05                   | <0.05                   | --- | --- | --- |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)                      |                    |      |      | Sample ID         | 0927_QC500_202308<br>03 | 0927_QC501_202308<br>03 | ---   | ---   | --- |
|---|--------------------|------|------|-------------------|-------------------------|-------------------------|-------|-------|-----|
| Sampling date / time                                      |                    |      |      | 03-Aug-2023 13:29 | 03-Aug-2023 13:30       | ---                     | ---   | ---   |     |
| Compound  | CAS Number         | LOR  | Unit | EM2314161-037     | EM2314161-038           | -----                   | ----- | ----- |     |
|   |                    |      |      | Result            | Result                  | ---                     | ---   | ---   |     |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                   |                         |                         |       |       |     |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05             | <0.05                   | ---                     | ---   | ---   |     |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05             | <0.05                   | ---                     | ---   | ---   |     |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02             | <0.02                   | ---                     | ---   | ---   |     |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02             | <0.02                   | ---                     | ---   | ---   |     |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                   |                         |                         |       |       |     |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05             | <0.05                   | ---                     | ---   | ---   |     |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05             | <0.05                   | ---                     | ---   | ---   |     |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05             | <0.05                   | ---                     | ---   | ---   |     |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05             | <0.05                   | ---                     | ---   | ---   |     |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                   |                         |                         |       |       |     |
| Sum of PFAS   | ---                | 0.01 | µg/L | <0.01             | <0.01                   | ---                     | ---   | ---   |     |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <0.01             | <0.01                   | ---                     | ---   | ---   |     |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | <0.01             | <0.01                   | ---                     | ---   | ---   |     |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                   |                         |                         |       |       |     |
| 13C4-PFOS   | ---                | 0.02 | %    | 99.3              | 101                     | ---                     | ---   | ---   |     |
| 13C8-PFOA   | ---                | 0.02 | %    | 97.5              | 94.2                    | ---                     | ---   | ---   |     |





### Surrogate Control Limits

| Sub-Matrix: GROUNDWATER       |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| <b>13C4-PFOS</b>              | ---        | 65                  | 140  |
| <b>13C8-PFOA</b>              | ---        | 71                  | 133  |

| Sub-Matrix: RINSATE           |            | Recovery Limits (%) |      |
|-------------------------------|------------|---------------------|------|
| Compound                      | CAS Number | Low                 | High |
| <b>EP231S: PFAS Surrogate</b> |            |                     |      |
| <b>13C4-PFOS</b>              | ---        | 65                  | 140  |
| <b>13C8-PFOA</b>              | ---        | 71                  | 133  |

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



# QUALITY CONTROL REPORT

Work Order : EM2314161

Page : 1 of 11

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Contact : [REDACTED]

Address : [REDACTED]

Address : [REDACTED]

Telephone : [REDACTED]

Telephone : + [REDACTED]

Project : VIC\_0927\_PFASOMP\_23

Date Samples Received : 04-Aug-2023

Order number : 304300114

Date Analysis Commenced : 08-Aug-2023

C-O-C number : 55354

Issue Date : 11-Aug-2023

Sampler : [REDACTED]

Site : GW - Onsite

Quote number : SY/139/19\_Laverton

No. of samples received : 38

No. of samples analysed : 35



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

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

This Quality Control Report contains the following information:

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

## Signatories

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

| Signatories | Position         | Accreditation Category              |
|-------------|------------------|-------------------------------------|
| [REDACTED]  | LCMS Coordinator | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

|  |  |  |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|--|--|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID                              | Method/Compound                                | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5224056)</b>   |  |  |            |                                   |      |                 |                  |         |                    |
| EM2314161-002  | 0927_MW144_20230801<br>Lab internal QC | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 0.55            | 0.58             | 4.9     | 0% - 20%           |
|  |  | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 0.86            | 0.83             | 2.7     | 0% - 20%           |
|  |  | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | 0.07            | 0.07             | 0.0     | No Limit           |
|  |  | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | 0.07            | 0.07             | 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           |
| EM2314161-011  | 0927_MW105_20230802<br>Lab internal QC | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 82.5            | 78.9             | 4.5     | 0% - 20%           |
|  |  | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 51.7            | 50.7             | 2.0     | 0% - 20%           |
|  |  | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | 9.39            | 9.59             | 2.1     | 0% - 20%           |
|  |  | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | 12.1            | 11.7             | 3.3     | 0% - 20%           |
|  |  | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375 92 8   | 0.02                              | µg/L | 3.28            | 3.19             | 2.7     | 0% - 20%           |
|  |  | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5225256)</b>   |  |  |            |                                   |      |                 |                  |         |                    |
| EM2314161-012  | 0927_MW107_20230801<br>Internal Lab QC | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.01                              | µg/L | 5.12            | 5.17             | 1.1     | 0% - 20%           |
|  |  | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.01                              | µg/L | 0.43            | 0.45             | 4.9     | 0% - 20%           |
|  |  | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.02                              | µg/L | 0.62            | 0.61             | 2.3     | 0% - 20%           |
|  |  | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.02                              | µg/L | 0.70            | 0.72             | 3.7     | 0% - 20%           |
|  |  | EP231X Perfluoroheptane sulfonic acid (PFHpS)  | 375-92-8   | 0.02                              | µg/L | 0.12            | 0.13             | 11.2    | No Limit           |
|  |  | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5224056)</b> |  |  |            |                                   |      |                 |                  |         |                    |



| 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 (%) |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5224056) - continued</b> |  |  |            |                                   |      |                 |                  |         |                    |
| EM2314161-002  | 0927_MW144_20230801<br>Lab internal QC | 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 | 0.03            | 0.03             | 0.0     | No Limit           |
|  |  | EP231X: Perfluorohexanoic acid (PFHxA)       | 307-24-4   | 0.02                              | µg/L | 0.09            | 0.09             | 0.0     | No Limit           |
|  |  | EP231X: Perfluoroheptanoic acid (PFHpA)      | 375-85-9   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluorononanoic acid (PFNA)        | 375-95-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluorodecanoic acid (PFDA)        | 335-76-2   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluoroundecanoic acid (PFUnDA)    | 2058-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluorododecanoic acid (PFDoDA)    | 307-55-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluorotridecanoic acid (PFTrDA)   | 72629-94-8 | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluorotetradecanoic acid (PFTeDA) | 376-06-7   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| EP231X: Perfluorobutanoic acid (PFBA)  | 375-22-4                               | 0.1  | µg/L       | <0.1                              | <0.1 | 0.0             | No Limit         |         |                    |
| EM2314161-011  | 0927_MW105_20230802<br>Lab internal QC | EP231X: Perfluorooctanoic acid (PFOA)        | 335-67-1   | 0.01                              | µg/L | 3.20            | 3.20             | 0.0     | 0% - 20%           |
|  |  | EP231X: Perfluoropentanoic acid (PFPeA)      | 2706-90-3  | 0.02                              | µg/L | 5.58            | 5.72             | 2.6     | 0% - 20%           |
|  |  | EP231X: Perfluorohexanoic acid (PFHxA)       | 307-24-4   | 0.02                              | µg/L | 33.2            | 32.3             | 2.9     | 0% - 20%           |
|  |  | EP231X: Perfluoroheptanoic acid (PFHpA)      | 375-85-9   | 0.02                              | µg/L | 2.19            | 2.13             | 2.8     | 0% - 20%           |
|  |  | EP231X: Perfluorononanoic acid (PFNA)        | 375-95-1   | 0.02                              | µg/L | 0.02            | 0.02             | 0.0     | No Limit           |
|  |  | EP231X: Perfluorodecanoic acid (PFDA)        | 335-76-2   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluoroundecanoic acid (PFUnDA)    | 2058-94-8  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluorododecanoic acid (PFDoDA)    | 307-55-1   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluorotridecanoic acid (PFTrDA)   | 72629-94-8 | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: Perfluorotetradecanoic acid (PFTeDA) | 376-06-7   | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
| EP231X: Perfluorobutanoic acid (PFBA)  | 375-22-4                               | 0.1  | µg/L       | 1.8                               | 1.8  | 0.0             | 0% - 50%         |         |                    |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5225256)</b>             |  |  |            |                                   |      |                 |                  |         |                    |
| EM2314161-012  | 0927_MW107_20230801<br>Internal Lab QC | EP231X: Perfluorooctanoic acid (PFOA)        | 335-67-1   | 0.01                              | µg/L | 0.17            | 0.18             | 0.0     | 0% - 50%           |
|  |  | EP231X: Perfluoropentanoic acid (PFPeA)      | 2706-90-3  | 0.02                              | µg/L | 0.20            | 0.19             | 5.6     | 0% - 50%           |
|  |  | EP231X: Perfluorohexanoic acid (PFHxA)       | 307-24-4   | 0.02                              | µg/L | 1.08            | 1.07             | 0.0     | 0% - 20%           |
|  |  | EP231X: Perfluoroheptanoic acid (PFHpA)      | 375-85-9   | 0.02                              | µg/L | 0.15            | 0.14             | 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         |         |                    |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5224056)</b>                 |  |  |            |                                   |      |                 |                  |         |                    |
| EM2314161-002  | 0927_MW144_20230801<br>Lab internal QC | EP231X: Perfluorooctane sulfonamide (FOSA)   | 754-91-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |



| Sub-Matrix: WATER  |  |   |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|--|--|---|------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID   | Sample ID                              | Method/Compound   | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5224056) - continued</b> |  |   |            |                                   |      |                 |                  |         |                    |
| EM2314161-002  | 0927_MW144_20230801<br>Lab internal QC | 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           |
| EM2314161-011  | 0927_MW105_20230802<br>Lab internal QC | 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           |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5225256)</b>             |  |   |            |                                   |      |                 |                  |         |                    |
| EM2314161-012  | 0927_MW107_20230801<br>Internal Lab QC | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6   | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6  | 0.02                              | µg/L | <0.02           | <0.02            | 0.0     | No Limit           |
|  |  | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8 | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |  | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2  | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |  | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7 | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |
|  |  | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2  | 0.05                              | µg/L | <0.05           | <0.05            | 0.0     | No Limit           |



| Sub-Matrix: WATER   |  |   |                    | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                    |
|---|--|---|--------------------|-----------------------------------|------|-----------------|------------------|---------|--------------------|
| Laboratory sample ID  | Sample ID                              | Method/Compound                                     | CAS Number         | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Acceptable RPD (%) |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5224056)</b> |  |   |                    |                                   |      |                 |                  |         |                    |
| EM2314161-002   | 0927_MW144_20230801<br>Lab internal QC | 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           |
| EM2314161-011   | 0927_MW105_20230802<br>Lab internal QC | 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           |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5225256)</b> |  |   |                    |                                   |      |                 |                  |         |                    |
| EM2314161-012   | 0927_MW107_20230801<br>Internal Lab QC | 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           |
| <b>EP231P: PFAS Sums (QC Lot: 5224056)</b>                          |  |   |                    |                                   |      |                 |                  |         |                    |
| EM2314161-002   | 0927_MW144_20230801<br>Lab internal QC | EP231X: Sum of PFAS                                 | ---                | 0.01                              | µg/L | 1.71            | 1.71             | 0.0     | 0% - 20%           |
|   |  | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 1.41            | 1.41             | 0.0     | 0% - 20%           |
|   |  | EP231X: Sum of PFAS (WA DER List)                   | ---                | 0.01                              | µg/L | 1.62            | 1.62             | 0.0     | 0% - 20%           |
| EM2314161-011   | 0927_MW105_20230802<br>Lab internal QC | EP231X: Sum of PFAS                                 | ---                | 0.01                              | µg/L | 205             | 199              | 2.8     | 0% - 20%           |
|   |  | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 134             | 130              | 3.5     | 0% - 20%           |
|   |  | EP231X: Sum of PFAS (WA DER List)                   | ---                | 0.01                              | µg/L | 190             | 184              | 2.8     | 0% - 20%           |
| <b>EP231P: PFAS Sums (QC Lot: 5225256)</b>                          |  |   |                    |                                   |      |                 |                  |         |                    |
| EM2314161-012   | 0927_MW107_20230801<br>Internal Lab QC | EP231X: Sum of PFAS                                 | ---                | 0.01                              | µg/L | 8.59            | 8.66             | 0.8     | 0% - 20%           |
|   |  | EP231X: Sum of PFHxS and PFOS                       | 355-46-4/1763-23-1 | 0.01                              | µg/L | 5.55            | 5.62             | 1.3     | 0% - 20%           |

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 Work Order : EM2314161  
 Client : STANTEC AUSTRALIA PTY LTD  
 Project : VIC\_0927\_PFASOMP\_23



| 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 (%) |
| <b>EP231P: PFAS Sums (QC Lot: 5225256) - continued</b> |  |                                   |            |                                   |      |                 |                  |         |                    |
| EM2314161-012  | 0927_MW107_20230801<br>Internal Lab QC | EP231X: Sum of PFAS (WA DER List) | ----       | 0.01                              | µg/L | 7.77            | 7.81             | 0.5     | 0% - 20%           |



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

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

Sub-Matrix: WATER

|   |            |      |      | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |                       |      |
|---|------------|------|------|--------------------------|---------------------------------------|--------------------|-----------------------|------|
|   |            |      |      | Result                   | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |      |
| Method: Compound  | CAS Number | LOR  | Unit |                          |                                       | LCS                | Low                   | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5224056)</b>   |            |      |      |                          |                                       |                    |                       |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 85.5               | 72.0                  | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 94.6               | 71.0                  | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 90.4               | 68.0                  | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 92.5               | 69.0                  | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 98.7               | 65.0                  | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 88.9               | 53.0                  | 142  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5225256)</b>   |            |      |      |                          |                                       |                    |                       |      |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                    | 375-73-5   | 0.02 | µg/L | <0.02                    | 0.222 µg/L                            | 88.6               | 72.0                  | 130  |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4  | 0.02 | µg/L | <0.02                    | 0.235 µg/L                            | 87.7               | 71.0                  | 127  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4   | 0.01 | µg/L | <0.01                    | 0.228 µg/L                            | 94.0               | 68.0                  | 131  |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8   | 0.02 | µg/L | <0.02                    | 0.238 µg/L                            | 84.4               | 69.0                  | 134  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1  | 0.01 | µg/L | <0.01                    | 0.232 µg/L                            | 89.7               | 65.0                  | 140  |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3   | 0.02 | µg/L | <0.02                    | 0.241 µg/L                            | 81.0               | 53.0                  | 142  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5224056)</b> |            |      |      |                          |                                       |                    |                       |      |
| EP231X: Perfluorobutanoic acid (PFBA)                           | 375-22-4   | 0.1  | µg/L | <0.1                     | 1.25 µg/L                             | 86.5               | 73.0                  | 129  |
| EP231X: Perfluoropentanoic acid (PFPeA)                         | 2706-90-3  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 91.7               | 72.0                  | 129  |
| EP231X: Perfluorohexanoic acid (PFHxA)                          | 307-24-4   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 89.6               | 72.0                  | 129  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                         | 375-85-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 90.4               | 72.0                  | 130  |
| EP231X: Perfluorooctanoic acid (PFOA)                           | 335-67-1   | 0.01 | µg/L | <0.01                    | 0.25 µg/L                             | 94.1               | 71.0                  | 133  |
| EP231X: Perfluorononanoic acid (PFNA)                           | 375-95-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 89.6               | 69.0                  | 130  |
| EP231X: Perfluorodecanoic acid (PFDA)                           | 335-76-2   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 90.1               | 71.0                  | 129  |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                       | 2058-94-8  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 94.7               | 69.0                  | 133  |
| EP231X: Perfluorododecanoic acid (PFDoDA)                       | 307-55-1   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 94.2               | 72.0                  | 134  |
| EP231X: Perfluorotridecanoic acid (PFTriDA)                     | 72629-94-8 | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 83.1               | 65.0                  | 144  |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                    | 376-06-7   | 0.05 | µg/L | <0.05                    | 0.625 µg/L                            | 91.9               | 71.0                  | 132  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5225256)</b> |            |      |      |                          |                                       |                    |                       |      |
| EP231X: Perfluorobutanoic acid (PFBA)                           | 375-22-4   | 0.1  | µg/L | <0.1                     | 1.25 µg/L                             | 73.4               | 73.0                  | 129  |
| EP231X: Perfluoropentanoic acid (PFPeA)                         | 2706-90-3  | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 79.7               | 72.0                  | 129  |
| EP231X: Perfluorohexanoic acid (PFHxA)                          | 307-24-4   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 83.7               | 72.0                  | 129  |
| EP231X: Perfluoroheptanoic acid (PFHpA)                         | 375-85-9   | 0.02 | µg/L | <0.02                    | 0.25 µg/L                             | 94.5               | 72.0                  | 130  |





Sub-Matrix: WATER

|   |             |      |      | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                           |                                   |     |
|---|-------------|------|------|-----------------------------|---------------------------------------|---------------------------|-----------------------------------|-----|
| Method: Compound  | CAS Number  | LOR  | Unit | Result                      | Spike<br>Concentration                | Spike Recovery (%)<br>LCS | Acceptable Limits (%)<br>Low High |     |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5225256) - continued</b> |             |      |      |                             |                                       |                           |                                   |     |
| EP231X: Perfluorooctanoic acid (PFOA)                                       | 335-67-1    | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 88.8                      | 71.0                              | 133 |
| EP231X: Perfluorononanoic acid (PFNA)                                       | 375-95-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 97.5                      | 69.0                              | 130 |
| EP231X: Perfluorodecanoic acid (PFDA)                                       | 335-76-2    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 82.8                      | 71.0                              | 129 |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                                   | 2058-94-8   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 80.7                      | 69.0                              | 133 |
| EP231X: Perfluorododecanoic acid (PFDoDA)                                   | 307-55-1    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.4                      | 72.0                              | 134 |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                                  | 72629-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 88.8                      | 65.0                              | 144 |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                                | 376-06-7    | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 90.5                      | 71.0                              | 132 |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5224056)</b>                 |             |      |      |                             |                                       |                           |                                   |     |
| EP231X: Perfluorooctane sulfonamide (FOSA)                                  | 754-91-6    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 92.7                      | 67.0                              | 137 |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)                       | 31506-32-8  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 119                       | 68.0                              | 141 |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)                        | 4151-50-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 107                       | 70.0                              | 130 |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)                | 24448-09-7  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 93.8                      | 70.0                              | 130 |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)                 | 1691-99-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 97.6                      | 70.0                              | 130 |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)           | 2355-31-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 96.3                      | 65.0                              | 136 |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)            | 2991-50-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.5                      | 61.0                              | 135 |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5225256)</b>                 |             |      |      |                             |                                       |                           |                                   |     |
| EP231X: Perfluorooctane sulfonamide (FOSA)                                  | 754-91-6    | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.5                      | 67.0                              | 137 |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)                       | 31506-32-8  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 120                       | 68.0                              | 141 |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)                        | 4151-50-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 104                       | 70.0                              | 130 |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)                | 24448-09-7  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 95.6                      | 70.0                              | 130 |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)                 | 1691-99-2   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 88.9                      | 70.0                              | 130 |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)           | 2355-31-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 90.2                      | 65.0                              | 136 |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)            | 2991-50-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 99.4                      | 61.0                              | 135 |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5224056)</b>          |             |      |      |                             |                                       |                           |                                   |     |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                           | 757124-72-4 | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 94.0                      | 63.0                              | 143 |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                           | 27619-97-2  | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 97.1                      | 64.0                              | 140 |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                           | 39108-34-4  | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 92.7                      | 67.0                              | 138 |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                         | 120226-60-0 | 0.05 | µg/L | <0.05                       | 0.242 µg/L                            | 72.0                      | 70.0                              | 130 |



Sub-Matrix: **WATER**

| Method: Compound   | CAS Number             | LOR  | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |                       |     |
|--|------------------------|------|------|--------------------------|---------------------------------------|--------------------|-----------------------|-----|
|  |                        |      |      | Result                   | Spike Concentration                   | Spike Recovery (%) | Acceptable Limits (%) |     |
|  |                        |      |      |                          | LCS                                   | Low                | High                  |     |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5225256)</b> |                        |      |      |                          |                                       |                    |                       |     |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                  | 757124-72-4            | 0.05 | µg/L | <0.05                    | 0.234 µg/L                            | 91.7               | 63.0                  | 143 |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                  | 27619-97-2             | 0.05 | µg/L | <0.05                    | 0.238 µg/L                            | 93.5               | 64.0                  | 140 |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                  | 39108-34-4             | 0.05 | µg/L | <0.05                    | 0.24 µg/L                             | 96.1               | 67.0                  | 138 |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                | 120226-60-0            | 0.05 | µg/L | <0.05                    | 0.242 µg/L                            | 73.5               | 70.0                  | 130 |
| <b>EP231P: PFAS Sums (QCLot: 5224056)</b>                          |                        |      |      |                          |                                       |                    |                       |     |
| EP231X: Sum of PFAS  | ---                    | 0.01 | µg/L | <0.01                    | ---                                   | ---                | ---                   | --- |
| EP231X: Sum of PFHxS and PFOS                                      | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                    | ---                                   | ---                | ---                   | --- |
| EP231X: Sum of PFAS (WA DER List)                                  | ---                    | 0.01 | µg/L | <0.01                    | ---                                   | ---                | ---                   | --- |
| <b>EP231P: PFAS Sums (QCLot: 5225256)</b>                          |                        |      |      |                          |                                       |                    |                       |     |
| EP231X: Sum of PFAS  | ---                    | 0.01 | µg/L | <0.01                    | ---                                   | ---                | ---                   | --- |
| EP231X: Sum of PFHxS and PFOS                                      | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                    | ---                                   | ---                | ---                   | --- |
| EP231X: Sum of PFAS (WA DER List)                                  | ---                    | 0.01 | µg/L | <0.01                    | ---                                   | ---                | ---                   | --- |

### Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

| Laboratory sample ID  | Sample ID                           | Method: Compound                               | CAS Number | Matrix Spike (MS) Report |                       |                       |     |
|---|-------------------------------------|--|------------|--------------------------|-----------------------|-----------------------|-----|
|   |                                     |  |            | Spike Concentration      | Spike Recovery (%) MS | Acceptable Limits (%) |     |
|   |                                     |  |            | Low                      | High                  |                       |     |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5224056)</b> |                                     |  |            |                          |                       |                       |     |
| EM2314161-011   | 0927_MW105_20230802 Lab internal QC | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.222 µg/L               | # Not Determined      | 72.0                  | 130 |
|   |                                     | EP231X: Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | 0.235 µg/L               | # Not Determined      | 71.0                  | 127 |
|   |                                     | EP231X: Perfluorohexane sulfonic acid (PFHxS)  | 355-46-4   | 0.228 µg/L               | # Not Determined      | 68.0                  | 131 |
|   |                                     | EP231X: Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | 0.238 µg/L               | # Not Determined      | 69.0                  | 134 |
|   |                                     | EP231X: Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | 0.232 µg/L               | # Not Determined      | 65.0                  | 140 |
|   |                                     | EP231X: Perfluorodecane sulfonic acid (PFDS)   | 335-77-3   | 0.241 µg/L               | 138                   | 53.0                  | 142 |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5225256)</b> |                                     |  |            |                          |                       |                       |     |
| EM2314161-012   | 0927_MW107_20230801 Internal Lab QC | EP231X: Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | 0.222 µg/L               | # Not Determined      | 72.0                  | 130 |



Sub-Matrix: WATER

|   |                                     |   |                                     | Matrix Spike (MS) Report                   |                  |                       |        |      |     |
|---|-------------------------------------|---|-------------------------------------|--|------------------|-----------------------|--------|------|-----|
|   |                                     |   |                                     | Spike                                      | SpikeRecovery(%) | Acceptable Limits (%) |        |      |     |
| Laboratory sample ID  | Sample ID                           | Method: Compound  | CAS Number                          | Concentration                              | MS               | Low                   | High   |      |     |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5225256) - continued</b> |                                     |   |                                     |  |                  |                       |        |      |     |
| EM2314161-012   | 0927_MW107_20230801 Internal Lab QC | EP231X: Perfluoropentane sulfonic acid (PFPeS)                  | 2706-91-4                           | 0.235 µg/L                                 | # Not Determined | 71.0                  | 127    |      |     |
|   |                                     | EP231X: Perfluorohexane sulfonic acid (PFHxS)                   | 355-46-4                            | 0.228 µg/L                                 | # Not Determined | 68.0                  | 131    |      |     |
|   |                                     | EP231X: Perfluoroheptane sulfonic acid (PFHpS)                  | 375-92-8                            | 0.238 µg/L                                 | 77.2             | 69.0                  | 134    |      |     |
|   |                                     | EP231X: Perfluorooctane sulfonic acid (PFOS)                    | 1763-23-1                           | 0.232 µg/L                                 | 93.2             | 65.0                  | 140    |      |     |
|   |                                     | EP231X: Perfluorodecane sulfonic acid (PFDS)                    | 335-77-3                            | 0.241 µg/L                                 | 74.2             | 53.0                  | 142    |      |     |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5224056)</b>           |                                     |   |                                     |  |                  |                       |        |      |     |
| EM2314161-011   | 0927_MW105_20230802 Lab internal QC | EP231X: Perfluorobutanoic acid (PFBA)                           | 375-22-4                            | 1.25 µg/L                                  | # 19.7           | 73.0                  | 129    |      |     |
|   |                                     | EP231X: Perfluoropentanoic acid (PFPeA)                         | 2706-90-3                           | 0.25 µg/L                                  | # Not Determined | 72.0                  | 129    |      |     |
|   |                                     | EP231X: Perfluorohexanoic acid (PFHxA)                          | 307-24-4                            | 0.25 µg/L                                  | # Not Determined | 72.0                  | 129    |      |     |
|   |                                     | EP231X: Perfluoroheptanoic acid (PFHpA)                         | 375-85-9                            | 0.25 µg/L                                  | # Not Determined | 72.0                  | 130    |      |     |
|   |                                     | EP231X: Perfluorooctanoic acid (PFOA)                           | 335-67-1                            | 0.25 µg/L                                  | # Not Determined | 71.0                  | 133    |      |     |
|   |                                     | EP231X: Perfluorononanoic acid (PFNA)                           | 375-95-1                            | 0.25 µg/L                                  | 84.8             | 69.0                  | 130    |      |     |
|   |                                     | EP231X: Perfluorodecanoic acid (PFDA)                           | 335-76-2                            | 0.25 µg/L                                  | 88.1             | 71.0                  | 129    |      |     |
|   |                                     | EP231X: Perfluoroundecanoic acid (PFUnDA)                       | 2058-94-8                           | 0.25 µg/L                                  | 92.8             | 69.0                  | 133    |      |     |
|   |                                     | EP231X: Perfluorododecanoic acid (PFDoDA)                       | 307-55-1                            | 0.25 µg/L                                  | 96.0             | 72.0                  | 134    |      |     |
|   |                                     | EP231X: Perfluorotridecanoic acid (PFTrDA)                      | 72629-94-8                          | 0.25 µg/L                                  | 83.2             | 65.0                  | 144    |      |     |
|   |                                     | EP231X: Perfluorotetradecanoic acid (PFTeDA)                    | 376-06-7                            | 0.625 µg/L                                 | 86.8             | 71.0                  | 132    |      |     |
|   |                                     | <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5225256)</b> |                                     |  |                  |                       |        |      |     |
|   |                                     | EM2314161-012   | 0927_MW107_20230801 Internal Lab QC | EP231X: Perfluorobutanoic acid (PFBA)      | 375-22-4         | 1.25 µg/L             | # 53.4 | 73.0 | 129 |
| EP231X: Perfluoropentanoic acid (PFPeA)                                   | 2706-90-3                           |   |                                     | 0.25 µg/L                                  | 92.1             | 72.0                  | 129    |      |     |
| EP231X: Perfluorohexanoic acid (PFHxA)                                    | 307-24-4                            |   |                                     | 0.25 µg/L                                  | # Not Determined | 72.0                  | 129    |      |     |
| EP231X: Perfluoroheptanoic acid (PFHpA)                                   | 375-85-9                            |   |                                     | 0.25 µg/L                                  | 93.0             | 72.0                  | 130    |      |     |
| EP231X: Perfluorooctanoic acid (PFOA)                                     | 335-67-1                            |   |                                     | 0.25 µg/L                                  | 95.8             | 71.0                  | 133    |      |     |
| EP231X: Perfluorononanoic acid (PFNA)                                     | 375-95-1                            |   |                                     | 0.25 µg/L                                  | 95.2             | 69.0                  | 130    |      |     |
| EP231X: Perfluorodecanoic acid (PFDA)                                     | 335-76-2                            |   |                                     | 0.25 µg/L                                  | 80.4             | 71.0                  | 129    |      |     |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                                 | 2058-94-8                           |   |                                     | 0.25 µg/L                                  | 86.8             | 69.0                  | 133    |      |     |
| EP231X: Perfluorododecanoic acid (PFDoDA)                                 | 307-55-1                            |   |                                     | 0.25 µg/L                                  | 86.4             | 72.0                  | 134    |      |     |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                                | 72629-94-8                          |   |                                     | 0.25 µg/L                                  | 81.5             | 65.0                  | 144    |      |     |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                              | 376-06-7                            |   |                                     | 0.625 µg/L                                 | 79.1             | 71.0                  | 132    |      |     |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5224056)</b>               |                                     |   |                                     |  |                  |                       |        |      |     |
| EM2314161-011   | 0927_MW105_20230802 Lab internal QC |   |                                     | EP231X: Perfluorooctane sulfonamide (FOSA) | 754-91-6         | 0.25 µg/L             | 83.9   | 67.0 | 137 |



Sub-Matrix: **WATER**

|   |                                     |   |             | Matrix Spike (MS) Report |                  |                       |      |
|---|-------------------------------------|---|-------------|--------------------------|------------------|-----------------------|------|
|   |                                     |   |             | Spike                    | SpikeRecovery(%) | Acceptable Limits (%) |      |
| Laboratory sample ID  | Sample ID                           | Method: Compound  | CAS Number  | Concentration            | MS               | Low                   | High |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5224056) - continued</b> |                                     |   |             |                          |                  |                       |      |
| EM2314161-011   | 0927_MW105_20230802 Lab internal QC | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.625 µg/L               | 88.9             | 68.0                  | 141  |
|   |                                     | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.625 µg/L               | 81.2             | 70.0                  | 130  |
|   |                                     | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 88.1             | 70.0                  | 130  |
|   |                                     | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 91.6             | 70.0                  | 130  |
|   |                                     | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 97.2             | 65.0                  | 136  |
|   |                                     | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 85.5             | 61.0                  | 135  |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5225256)</b>             |                                     |   |             |                          |                  |                       |      |
| EM2314161-012   | 0927_MW107_20230801 Internal Lab QC | EP231X: Perfluorooctane sulfonamide (FOSA)                        | 754-91-6    | 0.25 µg/L                | 85.9             | 67.0                  | 137  |
|   |                                     | EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)             | 31506-32-8  | 0.625 µg/L               | 81.9             | 68.0                  | 141  |
|   |                                     | EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)              | 4151-50-2   | 0.625 µg/L               | 77.4             | 70.0                  | 130  |
|   |                                     | EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7  | 0.625 µg/L               | 81.5             | 70.0                  | 130  |
|   |                                     | EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2   | 0.625 µg/L               | 84.2             | 70.0                  | 130  |
|   |                                     | EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9   | 0.25 µg/L                | 81.5             | 65.0                  | 136  |
|   |                                     | EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6   | 0.25 µg/L                | 70.2             | 61.0                  | 135  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5224056)</b>      |                                     |   |             |                          |                  |                       |      |
| EM2314161-011   | 0927_MW105_20230802 Lab internal QC | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 96.1             | 63.0                  | 143  |
|   |                                     | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 98.6             | 64.0                  | 140  |
|   |                                     | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 95.3             | 67.0                  | 138  |
|   |                                     | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | 81.5             | 70.0                  | 130  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5225256)</b>      |                                     |   |             |                          |                  |                       |      |
| EM2314161-012   | 0927_MW107_20230801 Internal Lab QC | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4 | 0.234 µg/L               | 91.9             | 63.0                  | 143  |
|   |                                     | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2  | 0.238 µg/L               | 92.6             | 64.0                  | 140  |
|   |                                     | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4  | 0.24 µg/L                | 92.0             | 67.0                  | 138  |
|   |                                     | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0 | 0.242 µg/L               | # 66.8           | 70.0                  | 130  |



## QA/QC Compliance Assessment to assist with Quality Review

|              |                             |                         |                                    |
|--------------|-----------------------------|-------------------------|------------------------------------|
| Work Order   | : EM2314161                 | Page                    | : 1 of 9                           |
| Client       | : STANTEC AUSTRALIA PTY LTD | Laboratory              | : Environmental Division Melbourne |
| Contact      | : [REDACTED]                | Telephone               | : [REDACTED]                       |
| Project      | : VIC_0927_PFASOMP_23       | Date Samples Received   | : 04-Aug-2023                      |
| Site         | : GW - Onsite               | Issue Date              | : 11-Aug-2023                      |
| Sampler      | : [REDACTED]                | No. of samples received | : 38                               |
| Order number | : 304300114                 | No. of samples analysed | : 35                               |

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



**Outliers : Quality Control Samples**

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: WATER

| Compound Group Name                     | Laboratory Sample ID | Client Sample ID           | Analyte                                | CAS Number | Data           | Limits    | Comment   |
|---|----------------------|----------------------------|--|------------|----------------|-----------|---|
| <b>Matrix Spike (MS) Recoveries</b>     |                      |                            |  |            |                |           |   |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2314161--011       | 0927_MW105_20230802 Lab i  | Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2314161--012       | 0927_MW107_20230801 Intern | Perfluorobutane sulfonic acid (PFBS)   | 375-73-5   | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2314161--011       | 0927_MW105_20230802 Lab i  | Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2314161--012       | 0927_MW107_20230801 Intern | Perfluoropentane sulfonic acid (PFPeS) | 2706-91-4  | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2314161--011       | 0927_MW105_20230802 Lab i  | 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   | EM2314161--012       | 0927_MW107_20230801 Intern | 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   | EM2314161 011        | 0927_MW105_20230802 Lab i  | Perfluoroheptane sulfonic acid (PFHpS) | 375-92-8   | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231A: Perfluoroalkyl Sulfonic Acids   | EM2314161--011       | 0927_MW105_20230802 Lab i  | Perfluorooctane sulfonic acid (PFOS)   | 1763-23-1  | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2314161--011       | 0927_MW105_20230802 Lab i  | Perfluorobutanoic acid (PFBA)          | 375-22-4   | 19.7 %         | 73.0-129% | Recovery less than lower data quality objective                                       |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2314161--012       | 0927_MW107_20230801 Intern | Perfluorobutanoic acid (PFBA)          | 375-22-4   | 53.4 %         | 73.0-129% | Recovery less than lower data quality objective                                       |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2314161--011       | 0927_MW105_20230802 Lab i  | Perfluoropentanoic acid (PFPeA)        | 2706-90-3  | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2314161--011       | 0927_MW105_20230802 Lab i  | Perfluorohexanoic acid (PFHxA)         | 307-24-4   | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2314161--012       | 0927_MW107_20230801 Intern | Perfluorohexanoic acid (PFHxA)         | 307-24-4   | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231B: Perfluoroalkyl Carboxylic Acids | EM2314161--011       | 0927_MW105_20230802 Lab i  | Perfluoroheptanoic acid (PFHpA)        | 375-85-9   | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |



Matrix: WATER

| Compound Group Name                             | Laboratory Sample ID | Client Sample ID           | Analyte                                     | CAS Number  | Data           | Limits    | Comment   |
|---|----------------------|----------------------------|---|-------------|----------------|-----------|---|
| <b>Matrix Spike (MS) Recoveries - Continued</b> |                      |                            |   |             |                |           |   |
| EP231B: Perfluoroalkyl Carboxylic Acids         | EM2314161--011       | 0927_MW105_20230802 Lab    | Perfluorooctanoic acid (PFOA)               | 335-67-1    | Not Determined | ---       | MS recovery not determined, background level greater than or equal to 4x spike level. |
| EP231D: (n:2) Fluorotelomer Sulfonic Acids      | EM2314161--012       | 0927_MW107_20230801 Intern | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0 | 66.8 %         | 70.0-130% | Recovery less than lower data quality objective                                       |

Outliers : Frequency of Quality Control Samples

Matrix: WATER

| Quality Control Sample Type                          | Count |         | Rate (%) |          | Quality Control Specification  |
|--|-------|---------|----------|----------|--------------------------------|
|  | QC    | Regular | Actual   | Expected |                                |
| Method   | 3     |         |          |          |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |       |         |          |          |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 3     | 35      | 8.57     | 10.00    | NEPM 2013 B3 & ALS QC Standard |

Analysis Holding Time Compliance

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

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

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

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

Matrix: WATER

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method                                       | Sample Date          | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|----------------------|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |                      | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b> |                      |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>               |                      |                          |                    |             |               |                  |             |   |
| 0927_MW144_20230801 - Lab internal QC,       | 0927_MW146_20230801, | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 10-Aug-2023      | 28-Jan-2024 | ✓ |
| 0927_MW217_20230801,                         | 0927_MW117_20230801, |                          |                    |             |               |                  |             |   |
| 0927_MW118_20230801 - MW118,                 | 0927_MW163_20230801, |                          |                    |             |               |                  |             |   |
| 0927_MW207_20230801                          |                      |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>               |                      |                          |                    |             |               |                  |             |   |
| 0927_MW208_20230801,                         | 0927_MW211_20230801, | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| 0927_MW109_20230801,                         | 0927_MW102_20230801, |                          |                    |             |               |                  |             |   |
| 0927_MW152_20230801,                         | 0927_MW155_20230801, |                          |                    |             |               |                  |             |   |
| 0927_MW182_20230801                          |                      |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b>               |                      |                          |                    |             |               |                  |             |   |
| 0927_MW107_20230801 - Internal Lab QC,       | 0927_MW200_20230801, | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| 0927_MW138_20230801,                         | 0927_MW139_20230801, |                          |                    |             |               |                  |             |   |
| 0927_MW140_20230801 - Internal Lab QC,       | 0927_QC101_20230801, |                          |                    |             |               |                  |             |   |
| 0927_QC301_20230801,                         | 0927_QC100_20230801, |                          |                    |             |               |                  |             |   |
| 0927_QC102_20230801,                         | 0927_QC103_20230801  |                          |                    |             |               |                  |             |   |



Matrix: WATER Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)   | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids - Continued</b>  |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW115_20230802  | 02-Aug-2023   | 09-Aug-2023              | 29-Jan-2024        | ✓           | 10-Aug-2023   | 29-Jan-2024      | ✓           |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW105_20230802 - Lab internal QC,<br>0927_MW120_20230802,   | 0927_MW103_20230802,<br>0927_MW185_20230802   | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW192_20230802,<br>0927_QC303_20230802  | 0927_MW110_20230802,  | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC305_20230803,<br>0927_QC501_20230803  | 0927_QC500_20230803,  | 03-Aug-2023              | 10-Aug-2023        | 30-Jan-2024 | ✓             | 11-Aug-2023      | 30-Jan-2024 | ✓ |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>  |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_MW144_20230801 - Lab internal QC,<br>0927_MW217_20230801,<br>0927_MW118_20230801 - MW118,<br>0927_MW207_20230801                                    | 0927_MW146_20230801,<br>0927_MW117_20230801,<br>0927_MW163_20230801,  | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 10-Aug-2023      | 28-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW208_20230801,<br>0927_MW109_20230801,<br>0927_MW152_20230801,<br>0927_MW182_20230801  | 0927_MW211_20230801,<br>0927_MW102_20230801,<br>0927_MW155_20230801,  | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW107_20230801 - Internal Lab QC,<br>0927_MW138_20230801,<br>0927_MW140_20230801 - Internal Lab QC,<br>0927_QC301_20230801,<br>0927_QC102_20230801, | 0927_MW200_20230801,<br>0927_MW139_20230801,<br>0927_QC101_20230801,<br>0927_QC100_20230801,<br>0927_QC103_20230801 | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW115_20230802  |   | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW105_20230802 - Lab internal QC,<br>0927_MW120_20230802,   | 0927_MW103_20230802,<br>0927_MW185_20230802   | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_MW192_20230802,<br>0927_QC303_20230802  | 0927_MW110_20230802,  | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| HDPE (no PTFE) (EP231X)<br>0927_QC305_20230803,<br>0927_QC501_20230803  | 0927_QC500_20230803,  | 03-Aug-2023              | 10-Aug-2023        | 30-Jan-2024 | ✓             | 11-Aug-2023      | 30-Jan-2024 | ✓ |





Matrix: WATER Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW144_20230801 - Lab internal QC,<br>0927_MW217_20230801,<br>0927_MW118_20230801 - MW118,<br>0927_MW207_20230801                                    | 0927_MW146_20230801,<br>0927_MW117_20230801,<br>0927_MW163_20230801,  | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 10-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW208_20230801,<br>0927_MW109_20230801,<br>0927_MW152_20230801,<br>0927_MW182_20230801  | 0927_MW211_20230801,<br>0927_MW102_20230801,<br>0927_MW155_20230801,  | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW107_20230801 - Internal Lab QC,<br>0927_MW138_20230801,<br>0927_MW140_20230801 - Internal Lab QC,<br>0927_QC301_20230801,<br>0927_QC102_20230801, | 0927_MW200_20230801,<br>0927_MW139_20230801,<br>0927_QC101_20230801,<br>0927_QC100_20230801,<br>0927_QC103_20230801 | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW115_20230802  |   | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW105_20230802 - Lab internal QC,<br>0927_MW120_20230802,   | 0927_MW103_20230802,<br>0927_MW185_20230802,  | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW192_20230802,<br>0927_QC303_20230802  | 0927_MW110_20230802,  | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_QC305_20230803,<br>0927_QC501_20230803  | 0927_QC500_20230803,  | 03-Aug-2023              | 10-Aug-2023        | 30-Jan-2024 | ✓             | 11-Aug-2023      | 30-Jan-2024 | ✓ |



Matrix: WATER Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>  |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW144_20230801 - Lab internal QC,<br>0927_MW217_20230801,<br>0927_MW118_20230801 - MW118,<br>0927_MW207_20230801                                    | 0927_MW146_20230801,<br>0927_MW117_20230801,<br>0927_MW163_20230801,  | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 10-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW208_20230801,<br>0927_MW109_20230801,<br>0927_MW152_20230801,<br>0927_MW182_20230801  | 0927_MW211_20230801,<br>0927_MW102_20230801,<br>0927_MW155_20230801,  | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW107_20230801 - Internal Lab QC,<br>0927_MW138_20230801,<br>0927_MW140_20230801 - Internal Lab QC,<br>0927_QC301_20230801,<br>0927_QC102_20230801, | 0927_MW200_20230801,<br>0927_MW139_20230801,<br>0927_QC101_20230801,<br>0927_QC100_20230801,<br>0927_QC103_20230801 | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW115_20230802  |   | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW105_20230802 - Lab internal QC,<br>0927_MW120_20230802,   | 0927_MW103_20230802,<br>0927_MW185_20230802,  | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW192_20230802,<br>0927_QC303_20230802  | 0927_MW110_20230802,  | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_QC305_20230803,<br>0927_QC501_20230803  | 0927_QC500_20230803,  | 03-Aug-2023              | 10-Aug-2023        | 30-Jan-2024 | ✓             | 11-Aug-2023      | 30-Jan-2024 | ✓ |



Matrix: WATER Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231P: PFAS Sums</b>   |   |                          |                    |             |               |                  |             |   |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW144_20230801 - Lab internal QC,<br>0927_MW217_20230801,<br>0927_MW118_20230801 - MW118,<br>0927_MW207_20230801                                    | 0927_MW146_20230801,<br>0927_MW117_20230801,<br>0927_MW163_20230801,  | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 10-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW208_20230801,<br>0927_MW109_20230801,<br>0927_MW152_20230801,<br>0927_MW182_20230801  | 0927_MW211_20230801,<br>0927_MW102_20230801,<br>0927_MW155_20230801,  | 01-Aug-2023              | 09-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW107_20230801 - Internal Lab QC,<br>0927_MW138_20230801,<br>0927_MW140_20230801 - Internal Lab QC,<br>0927_QC301_20230801,<br>0927_QC102_20230801, | 0927_MW200_20230801,<br>0927_MW139_20230801,<br>0927_QC101_20230801,<br>0927_QC100_20230801,<br>0927_QC103_20230801 | 01-Aug-2023              | 10-Aug-2023        | 28-Jan-2024 | ✓             | 11-Aug-2023      | 28-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW115_20230802  |   | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 10-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW105_20230802 - Lab internal QC,<br>0927_MW120_20230802,   | 0927_MW103_20230802,<br>0927_MW185_20230802,  | 02-Aug-2023              | 09-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_MW192_20230802,<br>0927_QC303_20230802  | 0927_MW110_20230802,  | 02-Aug-2023              | 10-Aug-2023        | 29-Jan-2024 | ✓             | 11-Aug-2023      | 29-Jan-2024 | ✓ |
| <b>HDPE (no PTFE) (EP231X)</b><br>0927_QC305_20230803,<br>0927_QC501_20230803  | 0927_QC500_20230803,  | 03-Aug-2023              | 10-Aug-2023        | 30-Jan-2024 | ✓             | 11-Aug-2023      | 30-Jan-2024 | ✓ |



## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 3     | 35      | 8.57     | 10.00    | ✖          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 2     | 35      | 5.71     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 2     | 35      | 5.71     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 2     | 35      | 5.71     | 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.

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Solid Phase Extraction (SPE) for PFAS in water       | ORG72         | WATER         | In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.  |



# CHAIN OF CUSTODY

COC#: 55354

ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

C/A B.15

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: 0927\_PFASOMP\_23

SITE: GW - Onsite

ORDER NO: 304300114

PROJECT MANAGER:

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19\_Laverton

SAMPLER MOBILE:

/ EM2023MWHAUS000  
2

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact?

Yes No N/A

Free ice / frozen ice bricks present upon receipt?

Yes No N/A

Random Sample Temperature on Receipt:

°C

Other comments:

**SAMPLE DETAILS****ANALYSIS REQUIRED**

| SAMPLE | NAME                | DESCRIPTION     | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | Analysis NOT REQUIRED | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
|--------|---------------------|-----------------|------------------------|--------|----------------------|---------|-----------------------|-------------------|----------------------|------------------------|
| 001    | 0927_MW115_20230802 |                 | 02/08/2023<br>05:40 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 002    | 0927_MW144_20230801 | Lab internal QC | 01/08/2023<br>04:48 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 003    | 0927_MW146_20230801 |                 | 01/08/2023<br>04:51 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 004    | 0927_MW217_20230801 |                 | 01/08/2023<br>04:56 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 005    | 0927_MW117_20230801 |                 | 01/08/2023<br>06:06 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 006    | 0927_MW118_20230801 | MW118           | 01/08/2023<br>04:52 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 007    | 0927_MW163_20230801 |                 | 01/08/2023<br>06:05 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 008    | 0927_MW207_20230801 |                 | 01/08/2023<br>05:56 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 009    | 0927_MW208_20230801 |                 | 01/08/2023<br>04:47 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |

Environmental Division  
Melbourne

Work Order Reference

**EM2314161**



# CHAIN OF CUSTODY

COC#: 55354

ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: 0927\_PFASOMP\_23

SITE: GW - Onsite

ORDER NO: 304300114

PROJECT MANAGER:

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19\_Laverton

SAMPLER MOBILE:

/ EM2023MWHAUS000  
2

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact?

Yes No N/A

Free ice / frozen ice bricks present upon receipt?

Yes No N/A

Random Sample Temperature on Receipt:

°C

Other comments:

**SAMPLE DETAILS****ANALYSIS REQUIRED**

| SAMPLE | NAME                | DESCRIPTION     | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | ANALYSIS REQUIRED     |                   |                      | ADDITIONAL INFORMATION |
|--------|---------------------|-----------------|------------------------|--------|----------------------|---------|-----------------------|-------------------|----------------------|------------------------|
|        |                     |                 |                        |        |                      |         | Analysis NOT REQUIRED | WATER: PFAS WATER | ALTERNATIVE ANALYSIS |                        |
| 010    | 0927_MW211_20230801 |                 | 01/08/2023<br>06:01 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 011    | 0927_MW105_20230802 | Lab internal QC | 02/08/2023<br>05:10 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 012    | 0927_MW107_20230801 | Internal Lab QC | 01/08/2023<br>04:38 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 013    | 0927_MW109_20230801 |                 | 01/08/2023<br>06:07 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 014    | 0927_MW102_20230801 |                 | 01/08/2023<br>04:57 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 015    | 0927_MW103_20230802 |                 | 02/08/2023<br>05:26 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 016    | 0927_MW120_20230802 |                 | 02/08/2023<br>05:35 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 017    | 0927_MW152_20230801 |                 | 01/08/2023<br>04:43 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 018    | 0927_MW155_20230801 |                 | 01/08/2023<br>04:45 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |



# CHAIN OF CUSTODY

COC#: 55354 ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME: 4/8, 13-15

CLIENT: MWAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: 0927\_PFSOMP\_23

SITE: GW - Onsite

ORDER NO: 304300114

PROJECT MANAGER: [Redacted]  
PRIMARY SAMPLER: [Redacted]

CONTACT PH: SAMPLER MOBILE:  
QUOTE NO: SY/139/19\_Laverton / EM2023MWAUS000  
2

TURNAROUND REQUIREMENTS: 5 Days

Biohazard info:

### LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A  
Free ice / frozen ice bricks present upon receipt? Yes No N/A  
Random Sample Temperature on Receipt: C  
Other comments:

EMAIL REPORTS TO: [Redacted]

EMAIL INVOICES TO: [Redacted]

| SAMPLE DETAILS |                     |                 |                        |        |                      |         | ANALYSIS REQUIRED     |                  |                      |                        |
|----------------|---------------------|-----------------|------------------------|--------|----------------------|---------|-----------------------|------------------|----------------------|------------------------|
| SAMPLE         | NAME                | DESCRIPTION     | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | Analysis NOT REQUIRED | WATER: PFS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 019            | 0927_MW182_20230801 |                 | 01/08/2023<br>05:59 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                |                      |                        |
| 020            | 0927_MW185_20230802 |                 | 02/08/2023<br>05:38 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                |                      |                        |
| 021            | 0927_MW192_20230802 |                 | 02/08/2023<br>05:29 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                |                      |                        |
| 022            | 0927_MW200_20230801 |                 | 01/08/2023<br>04:35 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                |                      |                        |
| 023            | 0927_MW110_20230802 |                 | 02/08/2023<br>05:39 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                |                      |                        |
| 024            | 0927_MW138_20230801 |                 | 01/08/2023<br>04:46 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                |                      |                        |
| 025            | 0927_MW139_20230801 |                 | 01/08/2023<br>06:02 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                |                      |                        |
| 026            | 0927_MW140_20230801 | Internal Lab QC | 01/08/2023<br>04:41 PM | WATER  | ALS: 6<br>Non ALS: 0 | No      |                       | X                |                      |                        |
| 027            | 0927_QC101_20230801 |                 | 01/08/2023<br>04:55 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                |                      |                        |



**CHAIN OF CUSTODY**

COC#: 55354 ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: 0927\_PFASOMP\_23

SITE: GW - Onsite

ORDER NO: 304300114

PROJECT MANAGER:

PRIMARY SAMPLER:

CONTACT PH:

QUOTE NO: SY/139/19\_Laverton

SAMPLER MOBILE:

/ EM2023MWHAUS000  
2

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact?

Yes No N/A

Free ice / frozen ice bricks present upon receipt?

Yes No N/A

Random Sample Temperature on Receipt:

C

Other comments:

**SAMPLE DETAILS****ANALYSIS REQUIRED**

| SAMPLE | NAME                | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | Analysis NOT REQUIRED | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
|--------|---------------------|-------------|------------------------|--------|----------------------|---------|-----------------------|-------------------|----------------------|------------------------|
| 028    | 0927_QC301_20230801 |             | 01/08/2023<br>05:52 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 029    | 0927_QC100_20230801 |             | 01/08/2023<br>05:54 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 030    | 0927_QC102_20230801 |             | 01/08/2023<br>05:57 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 031    | 0927_QC103_20230801 |             | 01/08/2023<br>06:00 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 032    | 0927_QC300_20230801 |             | 01/08/2023<br>06:04 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       |                   |                      |                        |
| 033    | 0927_QC303_20230802 |             | 02/08/2023<br>04:51 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 034    | 0927_QC302_20230802 |             | 02/08/2023<br>05:13 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       |                   |                      |                        |
| 035    | 0927_QC304_20230803 |             | 03/08/2023<br>01:01 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       |                   |                      |                        |
| 036    | 0927_QC305_20230803 |             | 03/08/2023<br>01:06 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |



# CHAIN OF CUSTODY

COC#: 55354

ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

CLIENT: MWHHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: 0927\_PFASOMP\_23

SITE: GW - Onsite

ORDER NO: 304300114

PROJECT MANAGER:

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH:

QUOTE NO: SY/139/19\_Laverton

SAMPLER MOBILE:

/ EM2023MWHHAUS000  
2

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

### LABORATORY USE ONLY (Circle)

Custody Seal intact?

Yes No N/A

Free ice / frozen ice bricks present upon receipt?

Yes No N/A

Random Sample Temperature on Receipt:

°C

Other comments:

### SAMPLE DETAILS

### ANALYSIS REQUIRED

| SAMPLE | NAME                | DESCRIPTION | DATE / TIME            | MATRIX | TOTAL BOTTLES        | ON HOLD | ANALYSIS REQUIRED     |                   |                      |                        |
|--------|---------------------|-------------|------------------------|--------|----------------------|---------|-----------------------|-------------------|----------------------|------------------------|
|        |                     |             |                        |        |                      |         | Analysis NOT REQUIRED | WATER: PFAS WATER | ALTERNATIVE ANALYSIS | ADDITIONAL INFORMATION |
| 037    | 0927_QC500_20230803 |             | 03/08/2023<br>01:29 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |
| 038    | 0927_QC501_20230803 |             | 03/08/2023<br>01:30 PM | WATER  | ALS: 2<br>Non ALS: 0 | No      |                       | X                 |                      |                        |

**CHAIN OF CUSTODY**

COC#: 55354

ALS Laboratory: EM Melbourne

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

DATE TIME:

DATE TIME:

DATE TIME:

DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: 0927\_PFSOMP\_23

SITE: GW - Onsite

ORDER NO: 304300114

PROJECT MANAGER:

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH:

QUOTE NO: SY/139/19\_Laverton

SAMPLER MOBILE:

/ EM2023MWHAUS000  
2

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

**LABORATORY USE ONLY (Circle)**

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

| SAMPLE | SAMPLE NAME         | BOTTLE NAME    | VOLUME | BARCODE        | TYPE | FILTERED | REASON |
|--------|---------------------|----------------|--------|----------------|------|----------|--------|
| 001    | 0927_MW115_20230802 | HDPE (no PTFE) | 20 mL  | 00352101038731 | Grey | No       |        |
| 001    | 0927_MW115_20230802 | HDPE (no PTFE) | 20 mL  | 00352101038705 | Grey | No       |        |
| 002    | 0927_MW144_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038614 | Grey | No       |        |
| 002    | 0927_MW144_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038542 | Grey | No       |        |
| 002    | 0927_MW144_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038835 | Grey | No       |        |
| 002    | 0927_MW144_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038492 | Grey | No       |        |
| 002    | 0927_MW144_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038767 | Grey | No       |        |
| 002    | 0927_MW144_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038839 | Grey | No       |        |
| 003    | 0927_MW146_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038476 | Grey | No       |        |
| 003    | 0927_MW146_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038681 | Grey | No       |        |
| 004    | 0927_MW217_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038663 | Grey | No       |        |
| 004    | 0927_MW217_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038797 | Grey | No       |        |
| 005    | 0927_MW117_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038637 | Grey | No       |        |
| 005    | 0927_MW117_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038777 | Grey | No       |        |
| 006    | 0927_MW118_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038678 | Grey | No       |        |
| 006    | 0927_MW118_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038673 | Grey | No       |        |
| 007    | 0927_MW163_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038840 | Grey | No       |        |
| 007    | 0927_MW163_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038481 | Grey | No       |        |
| 008    | 0927_MW207_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038551 | Grey | No       |        |
| 008    | 0927_MW207_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038674 | Grey | No       |        |
| 009    | 0927_MW208_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038735 | Grey | No       |        |
| 009    | 0927_MW208_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038557 | Grey | No       |        |
| 010    | 0927_MW211_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038784 | Grey | No       |        |
| 010    | 0927_MW211_20230801 | HDPE (no PTFE) | 20 mL  | 00352101038746 | Grey | No       |        |
| 011    | 0927_MW105_20230802 | HDPE (no PTFE) | 20 mL  | 00352101038612 | Grey | No       |        |
| 011    | 0927_MW105_20230802 | HDPE (no PTFE) | 20 mL  | 00352101038783 | Grey | No       |        |

Chain of Custody

Sheet 1 of 1

| PM Name: [REDACTED]   |               |                              |          | Sample Matrix                       |      | Sample preservation                             |                | Analysis          |                        |      |  |  |
|---|---------------|------------------------------|----------|-------------------------------------|------|---|----------------|-------------------|------------------------|------|--|--|
| Phone: [REDACTED] Mobile: [REDACTED]  |               |                              |          |                                     |      |   |                |                   |                        |      |  |  |
| Address: Level 4, 501 Swanston St Melbourne, VIC 3000   |               |                              |          |                                     |      |   |                |                   |                        |      |  |  |
| PM Email: [REDACTED]  |               |                              |          |                                     |      |   |                |                   |                        |      |  |  |
| Project Number: 304300114   |               | Site: RAAF Williams Laverton |          |                                     |      |   |                |                   |                        |      |  |  |
| Laboratory (name, phone, fax no & contact person) ALS   |               |                              |          |                                     |      |   |                |                   |                        |      |  |  |
| Sample ID   | Laboratory ID | Container                    | Sampling |                                     | Soil | Water   | Ice/ice Bricks | EP231X-1FAS 500ml |                        |      |  |  |
|   |               |                              | Date     | Time                                |      |   |                |                   |                        |      |  |  |
| <del>QC200-20230801</del>   |               |                              |          |                                     |      |   |                |                   |                        |      |  |  |
| QC200-20230801  |               | 2x PFAS                      | 1.9.23   |                                     | X    |   | X              |                   |                        |      |  |  |
| QC201-20230801  |               | ↓                            | ↓        |                                     | X    |   | X              |                   |                        |      |  |  |
| QC202-20230801  |               | ↓                            | ↓        |                                     | X    |   | X              |                   |                        |      |  |  |
| QC203-20230801  |               | ↓                            | ↓        |                                     | X    |   | X              |                   |                        |      |  |  |
| QC204-20230803  |               | ↓                            | 3.9.23   |                                     | X    |   | X              |                   | DATE: 4/8/23           |      |  |  |
| QC205-20230803  |               | ↓                            | ↓        |                                     | X    |   | X              |                   | : 3:0 ✓                |      |  |  |
| QC206-20230803  |               | ↓                            | ↓        |                                     | X    |   | X              |                   | SIGNATURE: 6 (circled) |      |  |  |
| Sampler: I attest that the proper field sampling procedures were used during the collection of these samples. |               |                              |          | Sampler name: (print and signature) |      | Date:   |                |                   |                        |      |  |  |
| Relinquished by: (print and signature)  |               | Date                         |          | Time                                |      | Received by (Course/Lab): (print and signature) |                | Date              |                        | Time |  |  |
| Relinquished by: (print and signature)  |               | Date                         |          | Time                                |      | Received by: (print and signature)              |                | Date              |                        | Time |  |  |
| Relinquished by: (print and signature)  |               | Date                         |          | Time                                |      | Received by: (print and signature)              |                | Date              |                        | Time |  |  |

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days)

Please circle

#1014137  
NIRKI  
04/08/23

**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

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

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

| Perth  |
|--|
| 46-48 Banksia Road<br>Welshpool<br>WA 6106<br>Tel: +61 8 6253 4444<br>NATA# 2377<br>Site# 2370 |

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

| Auckland  | Christchurch   | Tauranga   |
|---|--|--|
| 35 O'Rorke Road<br>Penrose,<br>Auckland 1061<br>Tel: +64 9 526 4551<br>IANZ# 1327 | 43 Detroit Drive<br>Rolleston,<br>Christchurch 7675<br>Tel: +64 3 343 5201<br>IANZ# 1290 | 1277 Cameron Road,<br>Gate Pa,<br>Tauranga 3112<br>Tel: +64 9 525 0568<br>IANZ# 1402 |

## Sample Receipt Advice

|                           |  |
|---------------------------|--|
| <b>Company name:</b>      | Stantec Australia Pty Ltd (VIC)          |
| <b>Contact name:</b>      | [REDACTED]                               |
| <b>Project name:</b>      | RAAF WILLIAMS LAVERTON - WYNDHAM COUNCIL |
| <b>Project ID:</b>        | 304300114                                |
| <b>Turnaround time:</b>   | 5 Day                                    |
| <b>Date/Time received</b> | Aug 4, 2023 5:31 PM                      |
| <b>Eurofins reference</b> | 1016445                                  |

## Sample Information

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

## Notes

Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

## Contact

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

[REDACTED]

Results will be delivered electronically via email to [REDACTED]

Note: A copy of these results will also be delivered to the general Stantec Australia Pty Ltd (VIC) email address.



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

|  |
|--|
| <b>Perth</b><br>46-48 Banksia Road<br>Welshpool<br>WA 6106<br>Tel: +61 8 6253 4444<br>NATA# 2377<br>Site# 2370 |
|--|

|  |   |   |
|--|---|---|
| <b>Auckland</b><br>35 O'Rorke Road<br>Penrose,<br>Auckland 1061<br>Tel: +64 9 526 4551<br>IANZ# 1327 | <b>Christchurch</b><br>43 Detroit Drive<br>Rolleston,<br>Christchurch 7675<br>Tel: +64 3 343 5201<br>IANZ# 1290 | <b>Tauranga</b><br>1277 Cameron Road,<br>Gate Pa,<br>Tauranga 3112<br>Tel: +64 9 525 0568<br>IANZ# 1402 |
|--|---|---|

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

|  |  |                   |         |                      |                     |
|--|--|-------------------|---------|----------------------|---------------------|
| <b>Company Name:</b>                                     | Stantec Australia Pty Ltd (VIC)          | <b>Order No.:</b> |         | <b>Received:</b>     | Aug 4, 2023 5:31 PM |
| <b>Address:</b>  | [REDACTED]                               | <b>Report #:</b>  | 1016445 | <b>Due:</b>          | Aug 21, 2023        |
|  | [REDACTED]                               | <b>Phone:</b>     |         | <b>Priority:</b>     | 5 Day               |
|  | [REDACTED]                               | <b>Fax:</b>       |         | <b>Contact Name:</b> | [REDACTED]          |
| <b>Project Name:</b>                                     | RAAF WILLIAMS LAVERTON - WYNDHAM COUNCIL |                   |         |                      |                     |
| <b>Project ID:</b>                                       | 304300114                                |                   |         |                      |                     |
| <b>Eurofins Analytical Services Manager :</b> [REDACTED] |  |                   |         |                      |                     |

| <b>Sample Detail</b>                           |                |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|----------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                |              |               |        |               | X   |
| External Laboratory                            |                |              |               |        |               |   |
| No   | Sample ID      | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | QC204_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013712 | X   |
| 2  | QC205_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013713 | X   |
| 3  | QC206_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013714 | X   |
| <b>Test Counts</b>                             |                |              |               |        |               | 3   |

Stantec Australia Pty Ltd  
Level 22, 570 Bourke Street  
Melbourne  
VIC 3000



NATA Accredited  
Accreditation Number 1261  
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing  
NATA is a signatory to the ILAC Mutual Recognition  
Arrangement for the mutual recognition of the  
equivalence of testing, medical testing, calibration,  
inspection, proficiency testing scheme providers and  
reference materials producers reports and certificates.

Attention: XXXXXXXXXX

**Report** 1016445-W  
Project name RAAF WILLIAMS LAVERTON - WYNDHAM COUNCIL  
Project ID 304300114  
Received Date Aug 04, 2023

| Client Sample ID  |      |      | QC204_202308<br>03 | QC205_202308<br>03 | QC206_202308<br>03 |
|---|------|------|--------------------|--------------------|--------------------|
| Sample Matrix   |      |      | Water              | Water              | Water              |
| Eurofins Sample No.   |      |      | M23-<br>Au0013712  | M23-<br>Au0013713  | M23-<br>Au0013714  |
| Date Sampled  |      |      | Aug 03, 2023       | Aug 03, 2023       | Aug 03, 2023       |
| Test/Reference  | LOR  | Unit |                    |                    |                    |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>                              |      |      |                    |                    |                    |
| Perfluorobutanoic acid (PFBA) <sup>N11</sup>                                | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| Perfluoropentanoic acid (PFPeA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorohexanoic acid (PFHxA) <sup>N11</sup>                               | 0.01 | ug/L | 0.01               | 0.01               | 0.01               |
| Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorooctanoic acid (PFOA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorononanoic acid (PFNA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorodecanoic acid (PFDA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorotridecanoic acid (PFTTrDA) <sup>N15</sup>                          | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorotetradecanoic acid (PFTTeDA) <sup>N11</sup>                        | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 13C4-PFBA (surr.)   | 1    | %    | 62                 | 56                 | 58                 |
| 13C5-PFPeA (surr.)  | 1    | %    | 125                | 124                | 118                |
| 13C5-PFHxA (surr.)  | 1    | %    | 118                | 116                | 109                |
| 13C4-PFHpA (surr.)  | 1    | %    | 117                | 115                | 113                |
| 13C8-PFOA (surr.)   | 1    | %    | 104                | 99                 | 98                 |
| 13C5-PFNA (surr.)   | 1    | %    | 87                 | 74                 | 78                 |
| 13C6-PFDA (surr.)   | 1    | %    | 68                 | 65                 | 66                 |
| 13C2-PFUnDA (surr.)   | 1    | %    | 84                 | 61                 | 68                 |
| 13C2-PFDoDA (surr.)   | 1    | %    | 70                 | 61                 | 56                 |
| 13C2-PFTTeDA (surr.)  | 1    | %    | 71                 | 99                 | 66                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                                |      |      |                    |                    |                    |
| Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>                           | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>            | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>             | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) <sup>N11</sup> | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) <sup>N11</sup>  | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>    | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>   | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| 13C8-FOSA (surr.)   | 1    | %    | 85                 | 85                 | 83                 |
| D3-N-MeFOSA (surr.)   | 1    | %    | 45                 | 138                | 72                 |

| Client Sample ID  |      |      | QC204_202308<br>03 | QC205_202308<br>03 | QC206_202308<br>03 |
|---|------|------|--------------------|--------------------|--------------------|
| Sample Matrix   |      |      | Water              | Water              | Water              |
| Eurofins Sample No.   |      |      | M23-<br>Au0013712  | M23-<br>Au0013713  | M23-<br>Au0013714  |
| Date Sampled  |      |      | Aug 03, 2023       | Aug 03, 2023       | Aug 03, 2023       |
| Test/Reference  | LOR  | Unit |                    |                    |                    |
| <b>Perfluoroalkyl sulfonamido substances</b>                          |      |      |                    |                    |                    |
| D5-N-EtFOSA (surr.)   | 1    | %    | 32                 | 142                | 60                 |
| D7-N-MeFOSE (surr.)   | 1    | %    | 56                 | 59                 | 54                 |
| D9-N-EtFOSE (surr.)   | 1    | %    | 55                 | 59                 | 48                 |
| D5-N-EtFOSAA (surr.)  | 1    | %    | 65                 | 52                 | 47                 |
| D3-N-MeFOSAA (surr.)  | 1    | %    | 64                 | 55                 | 52                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                          |      |      |                    |                    |                    |
| Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>                    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>                   | 0.01 | ug/L | 0.03               | 0.03               | 0.03               |
| Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>                    | 0.01 | ug/L | 0.03               | 0.03               | 0.03               |
| Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 13C3-PFBS (surr.)   | 1    | %    | 116                | 111                | 105                |
| 18O2-PFHxS (surr.)  | 1    | %    | 110                | 97                 | 92                 |
| 13C8-PFOS (surr.)   | 1    | %    | 87                 | 75                 | 80                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>                    |      |      |                    |                    |                    |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) <sup>N11</sup>     | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup> | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 13C2-4:2 FTSA (surr.)   | 1    | %    | 151                | 137                | 144                |
| 13C2-6:2 FTSA (surr.)   | 1    | %    | 107                | 84                 | 93                 |
| 13C2-8:2 FTSA (surr.)   | 1    | %    | 71                 | 50                 | 58                 |
| 13C2-10:2 FTSA (surr.)  | 1    | %    | 72                 | 59                 | 56                 |
| <b>PFASs Summations</b>   |      |      |                    |                    |                    |
| Sum (PFHxS + PFOS)*   | 0.01 | ug/L | 0.06               | 0.06               | 0.06               |
| Sum of US EPA PFAS (PFOS + PFOA)*                                     | 0.01 | ug/L | 0.03               | 0.03               | 0.03               |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                           | 0.01 | ug/L | 0.06               | 0.06               | 0.06               |
| Sum of WA DWER PFAS (n=10)*   | 0.05 | ug/L | 0.07               | 0.07               | 0.07               |
| Sum of PFASs (n=30)*  | 0.1  | ug/L | < 0.1              | < 0.1              | < 0.1              |



**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

| Description   | Testing Site | Extracted    | Holding Time |
|---|--------------|--------------|--------------|
| Per- and Polyfluoroalkyl Substances (PFASs)                       |              |              |              |
| Perfluoroalkyl carboxylic acids (PFCAs)                           | Melbourne    | Aug 05, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonamido substances                             | Melbourne    | Aug 05, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonic acids (PFSAs)                             | Melbourne    | Aug 05, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)                      | Melbourne    | Aug 05, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| PFASs Summations  | Melbourne    | Aug 04, 2023 |              |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |

|  |   |   |   |  |  |
|--|---|---|---|--|--|
| <b>Melbourne</b><br>6 Monterey Road<br>Dandenong South<br>VIC 3175<br>Tel: +61 3 8564 5000<br>NATA# 1261<br>Site# 1254 | <b>Geelong</b><br>19/8 Lewalan Street<br>Grovedale<br>VIC 3216<br>Tel: +61 3 8564 5000<br>NATA# 1261<br>Site# 25403 | <b>Sydney</b><br>179 Magowar Road<br>Girraween<br>NSW 2145<br>Tel: +61 2 9900 8400<br>NATA# 1261<br>Site# 18217 | <b>Canberra</b><br>Unit 1,2 Dacre Street<br>Mitchell<br>ACT 2911<br>Tel: +61 2 6113 8091<br>NATA# 1261<br>Site# 25466 | <b>Brisbane</b><br>1/21 Smallwood Place<br>Murarrie<br>QLD 4172<br>Tel: +61 7 3902 4600<br>NATA# 1261<br>Site# 20794 | <b>Newcastle</b><br>1/2 Frost Drive<br>Mayfield West NSW 2304<br>Tel: +61 2 4968 8448<br>NATA# 1261<br>Site# 25079 & 25289 |
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| <b>Perth</b><br>46-48 Banksia Road<br>Welshpool<br>WA 6106<br>Tel: +61 8 6253 4444<br>NATA# 2377<br>Site# 2370 |
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|--|---|---|
| <b>Auckland</b><br>35 O'Rorke Road<br>Penrose,<br>Auckland 1061<br>Tel: +64 9 526 4551<br>IANZ# 1327 | <b>Christchurch</b><br>43 Detroit Drive<br>Rolleston,<br>Christchurch 7675<br>Tel: +64 3 343 5201<br>IANZ# 1290 | <b>Tauranga</b><br>1277 Cameron Road,<br>Gate Pa,<br>Tauranga 3112<br>Tel: +64 9 525 0568<br>IANZ# 1402 |
|--|---|---|

|   |                          |                                      |
|---|--------------------------|--------------------------------------|
| <b>Company Name:</b> Stantec Australia Pty Ltd (VIC)          | <b>Order No.:</b>        | <b>Received:</b> Aug 4, 2023 5:31 PM |
| <b>Address:</b> [REDACTED] Street                             | <b>Report #:</b> 1016445 | <b>Due:</b> Aug 21, 2023             |
|   | <b>Phone:</b>            | <b>Priority:</b> 5 Day               |
|   | <b>Fax:</b>              | <b>Contact Name:</b> [REDACTED]      |
| <b>Project Name:</b> RAAF WILLIAMS LAVERTON - WYNDHAM COUNCIL |                          |                                      |
| <b>Project ID:</b> 304300114                                  |                          |                                      |
| <b>Eurofins Analytical Services Manager:</b> [REDACTED]       |                          |                                      |

| <b>Sample Detail</b>                           |                |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|----------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                |              |               |        |               | X   |
| External Laboratory                            |                |              |               |        |               |   |
| No   | Sample ID      | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | QC204_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013712 | X   |
| 2  | QC205_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013713 | X   |
| 3  | QC206_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013714 | X   |
| <b>Test Counts</b>                             |                |              |               |        |               | 3   |

## Internal Quality Control Review and Glossary

### General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

### Units

|  |   |  |
|--|---|--|
| <b>mg/kg:</b> milligrams per kilogram            | <b>mg/L:</b> milligrams per litre         | <b>µg/L:</b> micrograms per litre  |
| <b>ppm:</b> parts per million                    | <b>ppb:</b> parts per billion             | <b>%:</b> Percentage   |
| <b>org/100 mL:</b> Organisms per 100 millilitres | <b>NTU:</b> Nephelometric Turbidity Units | <b>MPN/100 mL:</b> Most Probable Number of organisms per 100 millilitres |
| <b>CFU:</b> Colony forming unit                  |   |  |

### Terms

|                         |   |
|-------------------------|---|
| <b>APHA</b>             | American Public Health Association  |
| <b>COC</b>              | Chain of Custody  |
| <b>CP</b>               | Client Parent - QC was performed on samples pertaining to this report   |
| <b>CRM</b>              | Certified Reference Material (ISO17034) - reported as percent recovery.   |
| <b>Dry</b>              | Where a moisture has been determined on a solid sample the result is expressed on a dry basis.  |
| <b>Duplicate</b>        | A second piece of analysis from the same sample and reported in the same units as the result to show comparison.  |
| <b>LOR</b>              | Limit of Reporting.   |
| <b>LCS</b>              | Laboratory Control Sample - reported as percent recovery.   |
| <b>Method Blank</b>     | In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.  |
| <b>NCP</b>              | Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.  |
| <b>RPD</b>              | Relative Percent Difference between two Duplicate pieces of analysis.   |
| <b>SPIKE</b>            | Addition of the analyte to the sample and reported as percentage recovery.  |
| <b>SRA</b>              | Sample Receipt Advice   |
| <b>Surr - Surrogate</b> | The addition of a like compound to the analyte target and reported as percentage recovery.  |
| <b>TBTO</b>             | Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| <b>TCLP</b>             | Toxicity Characteristic Leaching Procedure  |
| <b>TEQ</b>              | Toxic Equivalency Quotient or Total Equivalence   |
| <b>QSM</b>              | US Department of Defense Quality Systems Manual Version 5.4   |
| <b>US EPA</b>           | United States Environmental Protection Agency   |
| <b>WA DWER</b>          | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA   |

### QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

### QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

**Quality Control Results**

| Test   | Units | Result 1 |  | Acceptance Limits | Pass Limits | Qualifying Code |
|--|-------|----------|--|-------------------|-------------|-----------------|
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |       |          |  |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                 |       |          |  |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |       |          |  |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>LCS - % Recovery</b>                                      |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | %     | 87       |  | 50-150            | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | %     | 75       |  | 50-150            | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | %     | 77       |  | 50-150            | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | %     | 74       |  | 50-150            | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | %     | 70       |  | 50-150            | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | %     | 72       |  | 50-150            | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | %     | 75       |  | 50-150            | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | %     | 77       |  | 50-150            | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | %     | 79       |  | 50-150            | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | %     | 122      |  | 50-150            | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | %     | 86       |  | 50-150            | Pass        |                 |

| Test   | Units         | Result 1  |       |          | Acceptance Limits | Pass Limits       | Qualifying Code |                 |
|--|---------------|-----------|-------|----------|-------------------|-------------------|-----------------|-----------------|
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | %             | 79        |       |          | 50-150            | Pass              |                 |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | %             | 76        |       |          | 50-150            | Pass              |                 |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | %             | 106       |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | %             | 115       |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | %             | 92        |       |          | 50-150            | Pass              |                 |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | %             | 83        |       |          | 50-150            | Pass              |                 |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | %             | 91        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                  |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | %             | 74        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorononanesulfonic acid (PFNS)                          | %             | 70        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | %             | 76        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | %             | 85        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | %             | 82        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | %             | 98        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | %             | 85        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | %             | 68        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |               |           |       |          |                   |                   |                 |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | %             | 78        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | %             | 95        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | %             | 94        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | %             | 79        |       |          | 50-150            | Pass              |                 |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |                   | Acceptance Limits | Pass Limits     | Qualifying Code |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |               |           |       |          |                   |                   |                 |                 |
|  |               |           |       | Result 1 |                   |                   |                 |                 |
| Perfluoropentanoic acid (PFPeA)                              | M23-Au0013709 | NCP       | %     | 146      |                   | 50-150            | Pass            |                 |
| Perfluoroheptanoic acid (PFHpA)                              | M23-Au0013709 | NCP       | %     | 112      |                   | 50-150            | Pass            |                 |
| Perfluorononanoic acid (PFNA)                                | M23-Au0013709 | NCP       | %     | 69       |                   | 50-150            | Pass            |                 |
| Perfluorodecanoic acid (PFDA)                                | M23-Au0013709 | NCP       | %     | 79       |                   | 50-150            | Pass            |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Au0013709 | NCP       | %     | 80       |                   | 50-150            | Pass            |                 |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Au0013709 | NCP       | %     | 75       |                   | 50-150            | Pass            |                 |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Au0013709 | NCP       | %     | 117      |                   | 50-150            | Pass            |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Au0013709 | NCP       | %     | 83       |                   | 50-150            | Pass            |                 |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
|  |               |           |       | Result 1 |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Au0013709 | NCP       | %     | 92       |                   | 50-150            | Pass            |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Au0013709 | NCP       | %     | 81       |                   | 50-150            | Pass            |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Au0013709 | NCP       | %     | 91       |                   | 50-150            | Pass            |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Au0013709 | NCP       | %     | 106      |                   | 50-150            | Pass            |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Au0013709 | NCP       | %     | 93       |                   | 50-150            | Pass            |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Au0013709 | NCP       | %     | 74       |                   | 50-150            | Pass            |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Au0013709 | NCP       | %     | 80       |                   | 50-150            | Pass            |                 |

| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
|--|---------------|-----------|-------|----------|----------|-----|-------------------|-------------|-----------------|
| <b>Spike - % Recovery</b>                                    |               |           |       |          |          |     |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |               |           |       | Result 1 |          |     |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | M23-Au0013709 | NCP       | %     | 71       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | M23-Au0013709 | NCP       | %     | 83       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | M23-Au0013709 | NCP       | %     | 88       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | M23-Au0013709 | NCP       | %     | 78       |          |     | 50-150            | Pass        |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCA)</b>                |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | M23-Au0013708 | NCP       | ug/L  | 0.19     | 0.19     | <1  | 30%               | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | M23-Au0013708 | NCP       | ug/L  | 0.25     | 0.25     | <1  | 30%               | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | M23-Au0007014 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | M23-Au0013708 | NCP       | ug/L  | 0.18     | 0.18     | 1.4 | 30%               | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | M23-Au0013708 | NCP       | ug/L  | 0.40     | 0.41     | 3.9 | 30%               | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                  |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | M23-Au0013708 | NCP       | ug/L  | 0.71     | 0.72     | 1.2 | 30%               | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | M23-Au0007014 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | M23-Au0013708 | NCP       | ug/L  | 0.34     | 0.35     | 1.4 | 30%               | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | M23-Au0007014 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | M23-Au0007014 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |

| Duplicate  |               |     |      |          |          |     |     |      |
|--|---------------|-----|------|----------|----------|-----|-----|------|
| Perfluoroalkyl sulfonic acids (PFSAs)                  |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluoroheptanesulfonic acid (PFHpS)                  | M23-Au0007014 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorooctanesulfonic acid (PFOS)                    | M23-Au0016774 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorodecanesulfonic acid (PFDS)                    | M23-Au0013708 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSA)            |               |     |      | Result 1 | Result 2 | RPD |     |      |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)    | M23-Au0013708 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)     | M23-Au0013708 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)    | M23-Au0013708 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) | M23-Au0013708 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |

**Comments**

This is a split report with 1014137

**Sample Integrity**

|   |     |
|---|-----|
| Custody Seals Intact (if used)  | N/A |
| Attempt to Chill was evident  | Yes |
| Sample correctly preserved  | Yes |
| Appropriate sample containers have been used                            | Yes |
| Sample containers for volatile analysis received with minimal headspace | Yes |
| Samples received within HoldingTime                                     | Yes |
| Some samples have been subcontracted                                    | No  |

**Qualifier Codes/Comments**

| Code | Description  |
|------|--|
| N11  | Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds. |
| N15  | Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).                             |

**Authorised by:**


 Analytical Services Manager  
 Senior Analyst-PFAS



  
**Managing Director**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Chain of Custody

Sheet 1 of 1

| PM Name: [Redacted]   |               |                              |          | Sample Matrix |   | Sample preservation                 |                | Analysis         |              |  |  |  |
|---|---------------|------------------------------|----------|---------------|---|-------------------------------------|----------------|------------------|--------------|--|--|--|
| Phone: [Redacted] Mobile: [Redacted]  |               |                              |          |               |   |                                     |                |                  |              |  |  |  |
| Address: Level 4, 501 Swanston St Melbourne, VIC 3000   |               |                              |          |               |   |                                     |                |                  |              |  |  |  |
| PM Email: [Redacted]  |               |                              |          |               |   |                                     |                |                  |              |  |  |  |
| Project Number: 304300114   |               | Site: RAAF Williams Laverton |          |               |   |                                     |                |                  |              |  |  |  |
| Laboratory (name, phone, fax no & contact person) ALS   |               |                              |          |               |   |                                     |                |                  |              |  |  |  |
| Sample ID   | Laboratory ID | Container                    | Sampling |               | Soil  | Water                               | Ice/ice Bricks | EP231X-1FAS 50mV |              |  |  |  |
|   |               |                              | Date     | Time          |   |                                     |                |                  |              |  |  |  |
| <del>QC200-20230801</del>   |               |                              |          |               |   |                                     |                |                  |              |  |  |  |
| QC200-20230801  |               | 2x PFAS                      | 1.9.23   |               | X   |                                     | X              |                  |              |  |  |  |
| QC201-20230801  |               | ↓                            | ↓        |               | X   |                                     | X              |                  |              |  |  |  |
| QC202-20230801  |               | ↓                            | ↓        |               | X   |                                     | X              |                  |              |  |  |  |
| QC203-20230801  |               | ↓                            | ↓        |               | X   |                                     | X              |                  |              |  |  |  |
| QC204-20230803  |               | ↓                            | 3.9.23   |               | X   |                                     | X              |                  | DATE: 4/8/23 |  |  |  |
| QC205-20230803  |               | ↓                            | ↓        |               | X   |                                     | X              |                  | : 3:0        |  |  |  |
| QC206-20230803  |               | ↓                            | ↓        |               | X   |                                     | X              |                  | COURIER: ✓   |  |  |  |
|   |               |                              |          |               |   |                                     |                |                  | 6 (circled)  |  |  |  |
| Sampler: I attest that the proper field sampling procedures were used during the collection of these samples. |               |                              |          |               |   | Sampler name: (print and signature) |                | Date:            |              |  |  |  |
| Relinquished by: (print and signature)  |               |                              | Date     | Time          | Received by (Course/Lab): (print and signature) |                                     |                | Date             | Time         |  |  |  |
| Relinquished by: (print and signature)  |               |                              | Date     | Time          | Received by: (print and signature)              |                                     |                | Date             | Time         |  |  |  |
| Relinquished by: (print and signature)  |               |                              | Date     | Time          | Received by: (print and signature)              |                                     |                | Date             | Time         |  |  |  |

Please supply results electronically in spreadsheet and ESDAT files.  
**Turn around time: (24 hour/48 hour/3 days/5 days)** Please circle

#1014137  
 NIKKI  
 04/08/23

**From:** [REDACTED]  
**Sent:** Friday, 11 August 2023 4:09 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: DEF19008/304300114 Lab report Split

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

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

[REDACTED]  
No problem- we'll organise this for you.

[REDACTED]  
Please split report 1014137 as requested below.  
Please advise once done.

Kind regards,

[REDACTED]  
**Analytical Services Manager**

**Eurofins Environment Testing Australia Pty Ltd**

6 Monterey Rd

Dandenong South Vic 3175

Phone: + [REDACTED]

Mobile: [REDACTED]

[REDACTED]  
*My office hours are 8am to 5:30pm (Monday to Friday)*

*If you require sample receipt outside these hours please email [envirosamplevic@eurofins.com](mailto:envirosamplevic@eurofins.com)*

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Total Sulfur in Soils by LECO, NATA Accredited

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**From:** [REDACTED]  
**Sent:** Friday, 11 August 2023 4:06 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** DEF19008/304300114 Lab report Split



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

|  |
|--|
| <b>Perth</b><br>46-48 Banksia Road<br>Welshpool<br>WA 6106<br>Tel: +61 8 6253 4444<br>NATA# 2377<br>Site# 2370 |
|--|

|  |   |   |
|--|---|---|
| <b>Auckland</b><br>35 O'Rorke Road<br>Penrose,<br>Auckland 1061<br>Tel: +64 9 526 4551<br>IANZ# 1327 | <b>Christchurch</b><br>43 Detroit Drive<br>Rolleston,<br>Christchurch 7675<br>Tel: +64 3 343 5201<br>IANZ# 1290 | <b>Tauranga</b><br>1277 Cameron Road,<br>Gate Pa,<br>Tauranga 3112<br>Tel: +64 9 525 0568<br>IANZ# 1402 |
|--|---|---|

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

|  |  |                   |         |                      |                     |
|--|--|-------------------|---------|----------------------|---------------------|
| <b>Company Name:</b>                                     | Stantec Australia Pty Ltd (VIC)          | <b>Order No.:</b> |         | <b>Received:</b>     | Aug 4, 2023 5:31 PM |
| <b>Address:</b>  | [REDACTED]                               | <b>Report #:</b>  | 1016445 | <b>Due:</b>          | Aug 21, 2023        |
|  | [REDACTED]                               | <b>Phone:</b>     |         | <b>Priority:</b>     | 5 Day               |
|  | [REDACTED]                               | <b>Fax:</b>       |         | <b>Contact Name:</b> | [REDACTED]          |
| <b>Project Name:</b>                                     | RAAF WILLIAMS LAVERTON - WYNDHAM COUNCIL |                   |         |                      |                     |
| <b>Project ID:</b>                                       | 304300114                                |                   |         |                      |                     |
| <b>Eurofins Analytical Services Manager :</b> [REDACTED] |  |                   |         |                      |                     |

| <b>Sample Detail</b>                           |                |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|----------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                |              |               |        |               | X   |
| External Laboratory                            |                |              |               |        |               |   |
| No   | Sample ID      | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | QC204_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013712 | X   |
| 2  | QC205_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013713 | X   |
| 3  | QC206_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013714 | X   |
| <b>Test Counts</b>                             |                |              |               |        |               | 3   |

Stantec Australia Pty Ltd  
 Level 22, 570 Bourke Street  
 Melbourne  
 VIC 3000



NATA Accredited  
 Accreditation Number 1261  
 Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing  
 NATA is a signatory to the ILAC Mutual Recognition  
 Arrangement for the mutual recognition of the  
 equivalence of testing, medical testing, calibration,  
 inspection, proficiency testing scheme providers and  
 reference materials producers reports and certificates.

Attention: XXXXXXXXXX

**Report** 1016445-W  
 Project name RAAF WILLIAMS LAVERTON - WYNDHAM COUNCIL  
 Project ID 304300114  
 Received Date Aug 04, 2023

| Client Sample ID  |      |      | QC204_202308<br>03 | QC205_202308<br>03 | QC206_202308<br>03 |
|---|------|------|--------------------|--------------------|--------------------|
| Sample Matrix   |      |      | Water              | Water              | Water              |
| Eurofins Sample No.   |      |      | M23-<br>Au0013712  | M23-<br>Au0013713  | M23-<br>Au0013714  |
| Date Sampled  |      |      | Aug 03, 2023       | Aug 03, 2023       | Aug 03, 2023       |
| Test/Reference  | LOR  | Unit |                    |                    |                    |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>                              |      |      |                    |                    |                    |
| Perfluorobutanoic acid (PFBA) <sup>N11</sup>                                | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| Perfluoropentanoic acid (PFPeA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorohexanoic acid (PFHxA) <sup>N11</sup>                               | 0.01 | ug/L | 0.01               | 0.01               | 0.01               |
| Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorooctanoic acid (PFOA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorononanoic acid (PFNA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorodecanoic acid (PFDA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorotridecanoic acid (PFTTrDA) <sup>N15</sup>                          | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorotetradecanoic acid (PFTTeDA) <sup>N11</sup>                        | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 13C4-PFBA (surr.)   | 1    | %    | 62                 | 56                 | 58                 |
| 13C5-PFPeA (surr.)  | 1    | %    | 125                | 124                | 118                |
| 13C5-PFHxA (surr.)  | 1    | %    | 118                | 116                | 109                |
| 13C4-PFHpA (surr.)  | 1    | %    | 117                | 115                | 113                |
| 13C8-PFOA (surr.)   | 1    | %    | 104                | 99                 | 98                 |
| 13C5-PFNA (surr.)   | 1    | %    | 87                 | 74                 | 78                 |
| 13C6-PFDA (surr.)   | 1    | %    | 68                 | 65                 | 66                 |
| 13C2-PFUnDA (surr.)   | 1    | %    | 84                 | 61                 | 68                 |
| 13C2-PFDoDA (surr.)   | 1    | %    | 70                 | 61                 | 56                 |
| 13C2-PFTTeDA (surr.)  | 1    | %    | 71                 | 99                 | 66                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                                |      |      |                    |                    |                    |
| Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>                           | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>            | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>             | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) <sup>N11</sup> | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) <sup>N11</sup>  | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>    | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>   | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| 13C8-FOSA (surr.)   | 1    | %    | 85                 | 85                 | 83                 |
| D3-N-MeFOSA (surr.)   | 1    | %    | 45                 | 138                | 72                 |

| Client Sample ID  |      |      | QC204_202308<br>03 | QC205_202308<br>03 | QC206_202308<br>03 |
|---|------|------|--------------------|--------------------|--------------------|
| Sample Matrix   |      |      | Water              | Water              | Water              |
| Eurofins Sample No.   |      |      | M23-<br>Au0013712  | M23-<br>Au0013713  | M23-<br>Au0013714  |
| Date Sampled  |      |      | Aug 03, 2023       | Aug 03, 2023       | Aug 03, 2023       |
| Test/Reference  | LOR  | Unit |                    |                    |                    |
| <b>Perfluoroalkyl sulfonamido substances</b>                          |      |      |                    |                    |                    |
| D5-N-EtFOSA (surr.)   | 1    | %    | 32                 | 142                | 60                 |
| D7-N-MeFOSE (surr.)   | 1    | %    | 56                 | 59                 | 54                 |
| D9-N-EtFOSE (surr.)   | 1    | %    | 55                 | 59                 | 48                 |
| D5-N-EtFOSAA (surr.)  | 1    | %    | 65                 | 52                 | 47                 |
| D3-N-MeFOSAA (surr.)  | 1    | %    | 64                 | 55                 | 52                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                          |      |      |                    |                    |                    |
| Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>                    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>                   | 0.01 | ug/L | 0.03               | 0.03               | 0.03               |
| Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>                    | 0.01 | ug/L | 0.03               | 0.03               | 0.03               |
| Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 13C3-PFBS (surr.)   | 1    | %    | 116                | 111                | 105                |
| 18O2-PFHxS (surr.)  | 1    | %    | 110                | 97                 | 92                 |
| 13C8-PFOS (surr.)   | 1    | %    | 87                 | 75                 | 80                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>                    |      |      |                    |                    |                    |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) <sup>N11</sup>     | 0.05 | ug/L | < 0.05             | < 0.05             | < 0.05             |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup> | 0.01 | ug/L | < 0.01             | < 0.01             | < 0.01             |
| 13C2-4:2 FTSA (surr.)   | 1    | %    | 151                | 137                | 144                |
| 13C2-6:2 FTSA (surr.)   | 1    | %    | 107                | 84                 | 93                 |
| 13C2-8:2 FTSA (surr.)   | 1    | %    | 71                 | 50                 | 58                 |
| 13C2-10:2 FTSA (surr.)  | 1    | %    | 72                 | 59                 | 56                 |
| <b>PFASs Summations</b>   |      |      |                    |                    |                    |
| Sum (PFHxS + PFOS)*   | 0.01 | ug/L | 0.06               | 0.06               | 0.06               |
| Sum of US EPA PFAS (PFOS + PFOA)*                                     | 0.01 | ug/L | 0.03               | 0.03               | 0.03               |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                           | 0.01 | ug/L | 0.06               | 0.06               | 0.06               |
| Sum of WA DWER PFAS (n=10)*   | 0.05 | ug/L | 0.07               | 0.07               | 0.07               |
| Sum of PFASs (n=30)*  | 0.1  | ug/L | < 0.1              | < 0.1              | < 0.1              |

**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

| Description   | Testing Site | Extracted    | Holding Time |
|---|--------------|--------------|--------------|
| Per- and Polyfluoroalkyl Substances (PFASs)                       |              |              |              |
| Perfluoroalkyl carboxylic acids (PFCAs)                           | Melbourne    | Aug 05, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonamido substances                             | Melbourne    | Aug 05, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonic acids (PFSAs)                             | Melbourne    | Aug 05, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)                      | Melbourne    | Aug 05, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| PFASs Summations  | Melbourne    | Aug 04, 2023 |              |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |

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

|   |
|---|
| Perth<br>46-48 Banksia Road<br>Welshpool<br>WA 6106<br>Tel: +61 8 6253 4444<br>NATA# 2377<br>Site# 2370 |
|---|

|   |  |  |
|---|--|--|
| Auckland<br>35 O'Rorke Road<br>Penrose,<br>Auckland 1061<br>Tel: +64 9 526 4551<br>IANZ# 1327 | Christchurch<br>43 Detroit Drive<br>Rolleston,<br>Christchurch 7675<br>Tel: +64 3 343 5201<br>IANZ# 1290 | Tauranga<br>1277 Cameron Road,<br>Gate Pa,<br>Tauranga 3112<br>Tel: +64 9 525 0568<br>IANZ# 1402 |
|---|--|--|

|                      |  |                   |         |   |                     |
|----------------------|--|-------------------|---------|---|---------------------|
| <b>Company Name:</b> | Stantec Australia Pty Ltd (VIC)                      | <b>Order No.:</b> |         | <b>Received:</b>  | Aug 4, 2023 5:31 PM |
| <b>Address:</b>      | Level 22, 570 Bourke Street<br>Melbourne<br>VIC 3000 | <b>Report #:</b>  | 1016445 | <b>Due:</b>   | Aug 21, 2023        |
| <b>Project Name:</b> | RAAF WILLIAMS LAVERTON - WYNDHAM COUNCIL             | <b>Phone:</b>     |         | <b>Priority:</b>  | 5 Day               |
| <b>Project ID:</b>   | 304300114  | <b>Fax:</b>       |         | <b>Contact Name:</b>                                    | [REDACTED]          |
|                      |  |                   |         | <b>Eurofins Analytical Services Manager:</b> [REDACTED] |                     |

| Sample Detail                                  |                |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|----------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                |              |               |        |               | X   |
| External Laboratory                            |                |              |               |        |               |   |
| No   | Sample ID      | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | QC204_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013712 | X   |
| 2  | QC205_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013713 | X   |
| 3  | QC206_20230803 | Aug 03, 2023 |               | Water  | M23-Au0013714 | X   |
| <b>Test Counts</b>                             |                |              |               |        |               | 3   |

## Internal Quality Control Review and Glossary

### General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

### Units

|  |   |  |
|--|---|--|
| <b>mg/kg:</b> milligrams per kilogram            | <b>mg/L:</b> milligrams per litre         | <b>µg/L:</b> micrograms per litre  |
| <b>ppm:</b> parts per million                    | <b>ppb:</b> parts per billion             | <b>%:</b> Percentage   |
| <b>org/100 mL:</b> Organisms per 100 millilitres | <b>NTU:</b> Nephelometric Turbidity Units | <b>MPN/100 mL:</b> Most Probable Number of organisms per 100 millilitres |
| <b>CFU:</b> Colony forming unit                  |   |  |

### Terms

|                         |   |
|-------------------------|---|
| <b>APHA</b>             | American Public Health Association  |
| <b>COC</b>              | Chain of Custody  |
| <b>CP</b>               | Client Parent - QC was performed on samples pertaining to this report   |
| <b>CRM</b>              | Certified Reference Material (ISO17034) - reported as percent recovery.   |
| <b>Dry</b>              | Where a moisture has been determined on a solid sample the result is expressed on a dry basis.  |
| <b>Duplicate</b>        | A second piece of analysis from the same sample and reported in the same units as the result to show comparison.  |
| <b>LOR</b>              | Limit of Reporting.   |
| <b>LCS</b>              | Laboratory Control Sample - reported as percent recovery.   |
| <b>Method Blank</b>     | In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.  |
| <b>NCP</b>              | Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.  |
| <b>RPD</b>              | Relative Percent Difference between two Duplicate pieces of analysis.   |
| <b>SPIKE</b>            | Addition of the analyte to the sample and reported as percentage recovery.  |
| <b>SRA</b>              | Sample Receipt Advice   |
| <b>Surr - Surrogate</b> | The addition of a like compound to the analyte target and reported as percentage recovery.  |
| <b>TBTO</b>             | Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| <b>TCLP</b>             | Toxicity Characteristic Leaching Procedure  |
| <b>TEQ</b>              | Toxic Equivalency Quotient or Total Equivalence   |
| <b>QSM</b>              | US Department of Defense Quality Systems Manual Version 5.4   |
| <b>US EPA</b>           | United States Environmental Protection Agency   |
| <b>WA DWER</b>          | Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA   |

### QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

### QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.



**Quality Control Results**

| Test   | Units | Result 1 |  | Acceptance Limits | Pass Limits | Qualifying Code |
|--|-------|----------|--|-------------------|-------------|-----------------|
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |       |          |  |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                 |       |          |  |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |       |          |  |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>LCS - % Recovery</b>                                      |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | %     | 87       |  | 50-150            | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | %     | 75       |  | 50-150            | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | %     | 77       |  | 50-150            | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | %     | 74       |  | 50-150            | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | %     | 70       |  | 50-150            | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | %     | 72       |  | 50-150            | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | %     | 75       |  | 50-150            | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | %     | 77       |  | 50-150            | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | %     | 79       |  | 50-150            | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | %     | 122      |  | 50-150            | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | %     | 86       |  | 50-150            | Pass        |                 |

| Test   | Units                | Result 1         |              |                 | Acceptance Limits | Pass Limits              | Qualifying Code    |                        |
|--|----------------------|------------------|--------------|-----------------|-------------------|--------------------------|--------------------|------------------------|
| <b>LCS - % Recovery</b>                                      |                      |                  |              |                 |                   |                          |                    |                        |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |                      |                  |              |                 |                   |                          |                    |                        |
| Perfluorooctane sulfonamide (FOSA)                           | %                    | 79               |              |                 | 50-150            | Pass                     |                    |                        |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | %                    | 76               |              |                 | 50-150            | Pass                     |                    |                        |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | %                    | 106              |              |                 | 50-150            | Pass                     |                    |                        |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | %                    | 115              |              |                 | 50-150            | Pass                     |                    |                        |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | %                    | 92               |              |                 | 50-150            | Pass                     |                    |                        |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | %                    | 83               |              |                 | 50-150            | Pass                     |                    |                        |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | %                    | 91               |              |                 | 50-150            | Pass                     |                    |                        |
| <b>LCS - % Recovery</b>                                      |                      |                  |              |                 |                   |                          |                    |                        |
| <b>Perfluoroalkyl sulfonic acids (PFSA's)</b>                |                      |                  |              |                 |                   |                          |                    |                        |
| Perfluorobutanesulfonic acid (PFBS)                          | %                    | 74               |              |                 | 50-150            | Pass                     |                    |                        |
| Perfluorononanesulfonic acid (PFNS)                          | %                    | 70               |              |                 | 50-150            | Pass                     |                    |                        |
| Perfluoropropanesulfonic acid (PFPrS)                        | %                    | 76               |              |                 | 50-150            | Pass                     |                    |                        |
| Perfluoropentanesulfonic acid (PFPeS)                        | %                    | 85               |              |                 | 50-150            | Pass                     |                    |                        |
| Perfluorohexanesulfonic acid (PFHxS)                         | %                    | 82               |              |                 | 50-150            | Pass                     |                    |                        |
| Perfluoroheptanesulfonic acid (PFHpS)                        | %                    | 98               |              |                 | 50-150            | Pass                     |                    |                        |
| Perfluorooctanesulfonic acid (PFOS)                          | %                    | 85               |              |                 | 50-150            | Pass                     |                    |                        |
| Perfluorodecanesulfonic acid (PFDS)                          | %                    | 68               |              |                 | 50-150            | Pass                     |                    |                        |
| <b>LCS - % Recovery</b>                                      |                      |                  |              |                 |                   |                          |                    |                        |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>         |                      |                  |              |                 |                   |                          |                    |                        |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | %                    | 78               |              |                 | 50-150            | Pass                     |                    |                        |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | %                    | 95               |              |                 | 50-150            | Pass                     |                    |                        |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | %                    | 94               |              |                 | 50-150            | Pass                     |                    |                        |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | %                    | 79               |              |                 | 50-150            | Pass                     |                    |                        |
| <b>Test</b>  | <b>Lab Sample ID</b> | <b>QA Source</b> | <b>Units</b> | <b>Result 1</b> |                   | <b>Acceptance Limits</b> | <b>Pass Limits</b> | <b>Qualifying Code</b> |
| <b>Spike - % Recovery</b>                                    |                      |                  |              |                 |                   |                          |                    |                        |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |                      |                  |              |                 |                   |                          |                    |                        |
| Perfluoropentanoic acid (PFPeA)                              | M23-Au0013709        | NCP              | %            | 146             |                   | 50-150                   | Pass               |                        |
| Perfluoroheptanoic acid (PFHpA)                              | M23-Au0013709        | NCP              | %            | 112             |                   | 50-150                   | Pass               |                        |
| Perfluorononanoic acid (PFNA)                                | M23-Au0013709        | NCP              | %            | 69              |                   | 50-150                   | Pass               |                        |
| Perfluorodecanoic acid (PFDA)                                | M23-Au0013709        | NCP              | %            | 79              |                   | 50-150                   | Pass               |                        |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Au0013709        | NCP              | %            | 80              |                   | 50-150                   | Pass               |                        |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Au0013709        | NCP              | %            | 75              |                   | 50-150                   | Pass               |                        |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Au0013709        | NCP              | %            | 117             |                   | 50-150                   | Pass               |                        |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Au0013709        | NCP              | %            | 83              |                   | 50-150                   | Pass               |                        |
| <b>Spike - % Recovery</b>                                    |                      |                  |              |                 |                   |                          |                    |                        |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |                      |                  |              |                 |                   |                          |                    |                        |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Au0013709        | NCP              | %            | 92              |                   | 50-150                   | Pass               |                        |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Au0013709        | NCP              | %            | 81              |                   | 50-150                   | Pass               |                        |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Au0013709        | NCP              | %            | 91              |                   | 50-150                   | Pass               |                        |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Au0013709        | NCP              | %            | 106             |                   | 50-150                   | Pass               |                        |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Au0013709        | NCP              | %            | 93              |                   | 50-150                   | Pass               |                        |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Au0013709        | NCP              | %            | 74              |                   | 50-150                   | Pass               |                        |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Au0013709        | NCP              | %            | 80              |                   | 50-150                   | Pass               |                        |

| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
|--|---------------|-----------|-------|----------|----------|-----|-------------------|-------------|-----------------|
| <b>Spike - % Recovery</b>                                    |               |           |       |          |          |     |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |               |           |       | Result 1 |          |     |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | M23-Au0013709 | NCP       | %     | 71       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | M23-Au0013709 | NCP       | %     | 83       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | M23-Au0013709 | NCP       | %     | 88       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | M23-Au0013709 | NCP       | %     | 78       |          |     | 50-150            | Pass        |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCA)</b>                |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | M23-Au0013708 | NCP       | ug/L  | 0.19     | 0.19     | <1  | 30%               | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | M23-Au0013708 | NCP       | ug/L  | 0.25     | 0.25     | <1  | 30%               | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | M23-Au0007014 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | M23-Au0013708 | NCP       | ug/L  | 0.18     | 0.18     | 1.4 | 30%               | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | M23-Au0013708 | NCP       | ug/L  | 0.40     | 0.41     | 3.9 | 30%               | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Au0013708 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Au0013708 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA)</b>                  |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | M23-Au0013708 | NCP       | ug/L  | 0.71     | 0.72     | 1.2 | 30%               | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | M23-Au0007014 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | M23-Au0013708 | NCP       | ug/L  | 0.34     | 0.35     | 1.4 | 30%               | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | M23-Au0007014 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | M23-Au0007014 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |

| Duplicate  |               |     |      |          |          |     |     |      |
|--|---------------|-----|------|----------|----------|-----|-----|------|
| Perfluoroalkyl sulfonic acids (PFSAs)                  |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluoroheptanesulfonic acid (PFHpS)                  | M23-Au0007014 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorooctanesulfonic acid (PFOS)                    | M23-Au0016774 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorodecanesulfonic acid (PFDS)                    | M23-Au0013708 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSA)            |               |     |      | Result 1 | Result 2 | RPD |     |      |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)    | M23-Au0013708 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)     | M23-Au0013708 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)    | M23-Au0013708 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) | M23-Au0013708 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |

**Comments**

This is a split report with 1014137



**Sample Integrity**

|   |     |
|---|-----|
| Custody Seals Intact (if used)  | N/A |
| Attempt to Chill was evident  | Yes |
| Sample correctly preserved  | Yes |
| Appropriate sample containers have been used                            | Yes |
| Sample containers for volatile analysis received with minimal headspace | Yes |
| Samples received within HoldingTime                                     | Yes |
| Some samples have been subcontracted                                    | No  |

**Qualifier Codes/Comments**

| Code | Description  |
|------|--|
| N11  | Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds. |
| N15  | Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).                             |

**Authorised by:**

Analytical Services Manager  
Senior Analyst-PFAS

**Managing Director**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.



## CERTIFICATE OF ANALYSIS

**Work Order** : EM2318509 **Page** : 1 of 5  
**Amendment** : 1  
**Client** : STANTEC AUSTRALIA PTY LTD **Laboratory** : Environmental Division Melbourne  
**Contact** : [REDACTED] **Contact** : [REDACTED]  
**Address** : [REDACTED] **Address** : [REDACTED]  
**Telephone** : [REDACTED] **Telephone** : [REDACTED]  
**Project** : VIC\_0927\_PFASOMP\_23 **Date Samples Received** : 17-Oct-2023 13:40  
**Order number** : 304300114 **Date Analysis Commenced** : 18-Oct-2023  
**C-O-C number** : [REDACTED] **Issue Date** : 08-Nov-2023 12:08  
**Sampler** : [REDACTED]  
**Site** : SW – Offsite  
**Quote number** : SY/139/19\_Laverton  
**No. of samples received** : 5  
**No. of samples analysed** : 4



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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

### Signatories

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

| Signatories | Position            | Accreditation Category              |
|-------------|---------------------|-------------------------------------|
| [REDACTED]  | 2IC Organic Chemist | Melbourne Organics, Springvale, VIC |



## General Comments

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

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP231X - 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 (8/11/23): This report has been amended as a result of a request to change sample identification numbers (IDs) received from Ankita.M on 8/11/23, for all samples. All analysis results are as per the previous report.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)           |            |      |      | Sample ID               | 0927_SW042_202310<br>17 | 0927_QC100_202310<br>17 | 0927_QC300_202310<br>17 | 0927_QC500_202310<br>17 | ---- |
|--|------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------|
| Sampling date / time                           |            |      |      |                         | 17-Oct-2023 00:00       | 17-Oct-2023 00:00       | 17-Oct-2023 00:00       | 17-Oct-2023 00:00       | ---- |
| Compound                                       | CAS Number | LOR  | Unit | EM2318509-001<br>Result | EM2318509-003<br>Result | EM2318509-004<br>Result | EM2318509-005<br>Result | -----<br>---            |      |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>   |            |      |      |                         |                         |                         |                         |                         |      |
| Perfluorobutane sulfonic acid (PFBS)           | 375-73-5   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluoropentane sulfonic acid (PFPeS)         | 2706-91-4  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluorohexane sulfonic acid (PFHxS)          | 355-46-4   | 0.01 | µg/L | 0.07                    | 0.07                    | <0.01                   | <0.01                   | ----                    |      |
| Perfluoroheptane sulfonic acid (PFHpS)         | 375-92-8   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluorooctane sulfonic acid (PFOS)           | 1763-23-1  | 0.01 | µg/L | 0.18                    | 0.17                    | <0.01                   | <0.01                   | ----                    |      |
| Perfluorodecane sulfonic acid (PFDS)           | 335-77-3   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b> |            |      |      |                         |                         |                         |                         |                         |      |
| Perfluorobutanoic acid (PFBA)                  | 375-22-4   | 0.1  | µg/L | <0.1                    | <0.1                    | <0.1                    | <0.1                    | ----                    |      |
| Perfluoropentanoic acid (PFPeA)                | 2706-90-3  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluorohexanoic acid (PFHxA)                 | 307-24-4   | 0.02 | µg/L | 0.02                    | 0.02                    | <0.02                   | <0.02                   | ----                    |      |
| Perfluoroheptanoic acid (PFHpA)                | 375-85-9   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluorooctanoic acid (PFOA)                  | 335-67-1   | 0.01 | µg/L | 0.01                    | 0.01                    | <0.01                   | <0.01                   | ----                    |      |
| Perfluorononanoic acid (PFNA)                  | 375-95-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluorodecanoic acid (PFDA)                  | 335-76-2   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluoroundecanoic acid (PFUnDA)              | 2058-94-8  | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluorododecanoic acid (PFDoDA)              | 307-55-1   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluorotridecanoic acid (PFTrDA)             | 72629-94-8 | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| Perfluorotetradecanoic acid (PFTeDA)           | 376-06-7   | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----                    |      |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>     |            |      |      |                         |                         |                         |                         |                         |      |
| Perfluorooctane sulfonamide (FOSA)             | 754-91-6   | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----                    |      |
| N-Methyl perfluorooctane sulfonamide (MeFOSA)  | 31506-32-8 | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----                    |      |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA)   | 4151-50-2  | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----                    |      |





## Analytical Results

Sub-Matrix: WATER  
 (Matrix: WATER)

Sample ID

|   |                    |      |      | 0927_SW042_202310<br>17 | 0927_QC100_202310<br>17 | 0927_QC300_202310<br>17 | 0927_QC500_202310<br>17 | ----  |
|---|--------------------|------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------|
| Sampling date / time                                      |                    |      |      | 17-Oct-2023 00:00       | 17-Oct-2023 00:00       | 17-Oct-2023 00:00       | 17-Oct-2023 00:00       | ----  |
| Compound  | CAS Number         | LOR  | Unit | EM2318509-001           | EM2318509-003           | EM2318509-004           | EM2318509-005           | ----- |
|   |                    |      |      | Result                  | Result                  | Result                  | Result                  | ---   |
| <b>EP231C: Perfluoroalkyl Sulfonamides - Continued</b>    |                    |      |      |                         |                         |                         |                         |       |
| N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      | 24448-09-7         | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----  |
| N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       | 1691-99-2          | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----  |
| N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) | 2355-31-9          | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----  |
| N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)  | 2991-50-6          | 0.02 | µg/L | <0.02                   | <0.02                   | <0.02                   | <0.02                   | ----  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>         |                    |      |      |                         |                         |                         |                         |       |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                 | 757124-72-4        | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----  |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                 | 27619-97-2         | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----  |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                 | 39108-34-4         | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----  |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)               | 120226-60-0        | 0.05 | µg/L | <0.05                   | <0.05                   | <0.05                   | <0.05                   | ----  |
| <b>EP231P: PFAS Sums</b>                                  |                    |      |      |                         |                         |                         |                         |       |
| Sum of PFAS   | ---                | 0.01 | µg/L | <b>0.28</b>             | <b>0.27</b>             | <0.01                   | <0.01                   | ----  |
| Sum of PFHxS and PFOS                                     | 355-46-4/1763-23-1 | 0.01 | µg/L | <b>0.25</b>             | <b>0.24</b>             | <0.01                   | <0.01                   | ----  |
| Sum of PFAS (WA DER List)                                 | ---                | 0.01 | µg/L | <b>0.28</b>             | <b>0.27</b>             | <0.01                   | <0.01                   | ----  |
| <b>EP231S: PFAS Surrogate</b>                             |                    |      |      |                         |                         |                         |                         |       |
| 13C4-PFOS   | ---                | 0.02 | %    | <b>92.8</b>             | <b>93.8</b>             | <b>101</b>              | <b>92.5</b>             | ----  |
| 13C8-PFOA   | ---                | 0.02 | %    | <b>102</b>              | <b>102</b>              | <b>101</b>              | <b>96.7</b>             | ----  |



### Surrogate Control Limits

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



## QUALITY CONTROL REPORT

Work Order : EM2318509

Page : 1 of 4

Amendment : 1

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Contact : [REDACTED]

Address : [REDACTED]

Address : [REDACTED]

Telephone : ----

Telephone : [REDACTED]

Project : VIC\_0927\_PFASOMP\_23

Date Samples Received : 17-Oct-2023

Order number : 304300114

Date Analysis Commenced : 18-Oct-2023

C-O-C number : ----

Issue Date : 08-Nov-2023

Sampler : [REDACTED]

Site : SW – Offsite

Quote number : SY/139/19\_Laverton

No. of samples received : 5

No. of samples analysed : 4



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

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

This Quality Control Report contains the following information:

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

### Signatories

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

Signatories

Position

Accreditation Category

[REDACTED]

2IC Organic Chemist

Melbourne Organics, Springvale, VIC



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

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



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

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

Sub-Matrix: **WATER**

|  |            |      |      | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                        |                    |     |                       |
|--|------------|------|------|-----------------------------|---------------------------------------|------------------------|--------------------|-----|-----------------------|
|  |            |      |      |                             | Result                                | Spike<br>Concentration | Spike Recovery (%) |     | Acceptable Limits (%) |
| Method: Compound   | CAS Number | LOR  | Unit |                             |                                       |                        |                    | LCS | Low                   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5366529)</b>      |            |      |      |                             |                                       |                        |                    |     |                       |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                       | 375-73-5   | 0.02 | µg/L | <0.02                       | 0.222 µg/L                            | 82.8                   | 72.0               | 130 |                       |
| EP231X: Perfluoropentane sulfonic acid (PFPeS)                     | 2706-91-4  | 0.02 | µg/L | <0.02                       | 0.235 µg/L                            | 98.3                   | 71.0               | 127 |                       |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                      | 355-46-4   | 0.01 | µg/L | <0.01                       | 0.228 µg/L                            | 97.6                   | 68.0               | 131 |                       |
| EP231X: Perfluoroheptane sulfonic acid (PFHpS)                     | 375-92-8   | 0.02 | µg/L | <0.02                       | 0.238 µg/L                            | 98.1                   | 69.0               | 134 |                       |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                       | 1763-23-1  | 0.01 | µg/L | <0.01                       | 0.232 µg/L                            | 91.6                   | 65.0               | 140 |                       |
| EP231X: Perfluorodecane sulfonic acid (PFDS)                       | 335-77-3   | 0.02 | µg/L | <0.02                       | 0.241 µg/L                            | 87.2                   | 53.0               | 142 |                       |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5366529)</b>    |            |      |      |                             |                                       |                        |                    |     |                       |
| EP231X: Perfluorobutanoic acid (PFBA)                              | 375-22-4   | 0.1  | µg/L | <0.1                        | 1.25 µg/L                             | 86.8                   | 73.0               | 129 |                       |
| EP231X: Perfluoropentanoic acid (PFPeA)                            | 2706-90-3  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 92.1                   | 72.0               | 129 |                       |
| EP231X: Perfluorohexanoic acid (PFHxA)                             | 307-24-4   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 93.5                   | 72.0               | 129 |                       |
| EP231X: Perfluoroheptanoic acid (PFHpA)                            | 375-85-9   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 88.6                   | 72.0               | 130 |                       |
| EP231X: Perfluorooctanoic acid (PFOA)                              | 335-67-1   | 0.01 | µg/L | <0.01                       | 0.25 µg/L                             | 85.9                   | 71.0               | 133 |                       |
| EP231X: Perfluorononanoic acid (PFNA)                              | 375-95-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.7                   | 69.0               | 130 |                       |
| EP231X: Perfluorodecanoic acid (PFDA)                              | 335-76-2   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.5                   | 71.0               | 129 |                       |
| EP231X: Perfluoroundecanoic acid (PFUnDA)                          | 2058-94-8  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 95.5                   | 69.0               | 133 |                       |
| EP231X: Perfluorododecanoic acid (PFDoDA)                          | 307-55-1   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 86.5                   | 72.0               | 134 |                       |
| EP231X: Perfluorotridecanoic acid (PFTrDA)                         | 72629-94-8 | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 82.1                   | 65.0               | 144 |                       |
| EP231X: Perfluorotetradecanoic acid (PFTeDA)                       | 376-06-7   | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 91.1                   | 71.0               | 132 |                       |
| <b>EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5366529)</b>        |            |      |      |                             |                                       |                        |                    |     |                       |
| EP231X: Perfluorooctane sulfonamide (FOSA)                         | 754-91-6   | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 94.4                   | 67.0               | 137 |                       |
| EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)              | 31506-32-8 | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 101                    | 68.0               | 141 |                       |
| EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)               | 4151-50-2  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 83.6                   | 70.0               | 130 |                       |
| EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)       | 24448-09-7 | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 85.1                   | 70.0               | 130 |                       |
| EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)        | 1691-99-2  | 0.05 | µg/L | <0.05                       | 0.625 µg/L                            | 81.5                   | 70.0               | 130 |                       |
| EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)  | 2355-31-9  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 89.6                   | 65.0               | 136 |                       |
| EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)   | 2991-50-6  | 0.02 | µg/L | <0.02                       | 0.25 µg/L                             | 77.9                   | 61.0               | 135 |                       |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5366529)</b> |            |      |      |                             |                                       |                        |                    |     |                       |



Sub-Matrix: **WATER**

|  |                        |      |      | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                           |                       |      |
|--|------------------------|------|------|-----------------------------|---------------------------------------|---------------------------|-----------------------|------|
|  |                        |      |      |                             | Spike<br>Concentration                | Spike Recovery (%)<br>LCS | Acceptable Limits (%) |      |
| Method: Compound   | CAS Number             | LOR  | Unit | Result                      |                                       |                           | Low                   | High |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5366529) - continued</b> |                        |      |      |                             |                                       |                           |                       |      |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                              | 757124-72-4            | 0.05 | µg/L | <0.05                       | 0.234 µg/L                            | 96.1                      | 63.0                  | 143  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                              | 27619-97-2             | 0.05 | µg/L | <0.05                       | 0.238 µg/L                            | 92.7                      | 64.0                  | 140  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                              | 39108-34-4             | 0.05 | µg/L | <0.05                       | 0.24 µg/L                             | 90.8                      | 67.0                  | 138  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                            | 120226-60-0            | 0.05 | µg/L | <0.05                       | 0.242 µg/L                            | 91.6                      | 70.0                  | 130  |
| <b>EP231P: PFAS Sums (QCLot: 5366529)</b>                                      |                        |      |      |                             |                                       |                           |                       |      |
| EP231X: Sum of PFAS  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ---                       | ---                   | ---  |
| EP231X: Sum of PFHxS and PFOS  | 355-46-4/17<br>63-23-1 | 0.01 | µg/L | <0.01                       | ----                                  | ---                       | ---                   | ---  |
| EP231X: Sum of PFAS (WA DER List)  | ----                   | 0.01 | µg/L | <0.01                       | ----                                  | ---                       | ---                   | ---  |

### Matrix Spike (MS) Report

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

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



## QA/QC Compliance Assessment to assist with Quality Review

Work Order : EM2318509

Page : 1 of 4

Amendment : 1

Client : STANTEC AUSTRALIA PTY LTD

Laboratory : Environmental Division Melbourne

Contact : [REDACTED]

Telephone : [REDACTED]

Project : VIC\_0927\_PFASOMP\_23

Date Samples Received : 17-Oct-2023

Site : SW – Offsite

Issue Date : 08-Nov-2023

Sampler : [REDACTED]

No. of samples received : 5

Order number : 304300114

No. of samples analysed : 4

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



### Outliers : Frequency of Quality Control Samples

Matrix: WATER

| Quality Control Sample Type<br>Method   | Count |         | Rate (%) |          | Quality Control Specification  |
|---|-------|---------|----------|----------|--------------------------------|
|   | QC    | Regular | Actual   | Expected |                                |
| Laboratory Duplicates (DUP)<br>Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | 0     | 9       | 0.00     | 10.00    | NEPM 2013 B3 & ALS QC Standard |
| Matrix Spikes (MS)<br>Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS          | 0     | 9       | 0.00     | 5.00     | NEPM 2013 B3 & ALS QC Standard |

### Analysis Holding Time Compliance

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

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

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

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

Matrix: WATER

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

| Method<br>Container / Client Sample ID(s)                               | Sample Date                                 | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>                            |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW042_20231017,<br>0927_QC300_20231017, | 0927_QC100_20231017,<br>0927_QC500_20231017 | 17-Oct-2023              | 18-Oct-2023        | 14-Apr-2024 | ✔             | 19-Oct-2023      | 14-Apr-2024 | ✔ |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>                          |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW042_20231017,<br>0927_QC300_20231017, | 0927_QC100_20231017,<br>0927_QC500_20231017 | 17-Oct-2023              | 18-Oct-2023        | 14-Apr-2024 | ✔             | 19-Oct-2023      | 14-Apr-2024 | ✔ |
| <b>EP231C: Perfluoroalkyl Sulfonamides</b>                              |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW042_20231017,<br>0927_QC300_20231017, | 0927_QC100_20231017,<br>0927_QC500_20231017 | 17-Oct-2023              | 18-Oct-2023        | 14-Apr-2024 | ✔             | 19-Oct-2023      | 14-Apr-2024 | ✔ |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>                       |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW042_20231017,<br>0927_QC300_20231017, | 0927_QC100_20231017,<br>0927_QC500_20231017 | 17-Oct-2023              | 18-Oct-2023        | 14-Apr-2024 | ✔             | 19-Oct-2023      | 14-Apr-2024 | ✔ |
| <b>EP231P: PFAS Sums</b>  |   |                          |                    |             |               |                  |             |   |
| HDPE (no PTFE) (EP231X)<br>0927_SW042_20231017,<br>0927_QC300_20231017, | 0927_QC100_20231017,<br>0927_QC500_20231017 | 17-Oct-2023              | 18-Oct-2023        | 14-Apr-2024 | ✔             | 19-Oct-2023      | 14-Apr-2024 | ✔ |





## Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|---------|----------|----------|------------|--------------------------------|
|  |        | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |        |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 0     | 9       | 0.00     | 10.00    | ✖          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 9       | 11.11    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 1     | 9       | 11.11    | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |        |       |         |          |          |            |                                |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X | 0     | 9       | 0.00     | 5.00     | ✖          | NEPM 2013 B3 & ALS QC Standard |



## Brief Method Summaries

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

| <i>Analytical Methods</i>                            | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|--|---------------|---------------|--|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X        | WATER         | In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements. |
| <i>Preparation Methods</i>                           | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| 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.  |

| PM Name: [REDACTED]   |               |           |            | Sample Matrix                                     |      | Sample preservation |                | Analysis   |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
|---|---------------|-----------|------------|---|------|---------------------|----------------|--|---------------------|--|--|------|--|------|--|-------------|--|--|--|--|--|--|
| Phone: [REDACTED] Mobile: [REDACTED]  |               |           |            |   |      |                     |                |  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| Address: [REDACTED]   |               |           |            |   |      |                     |                |  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| PM Email: [REDACTED]  |               |           |            |   |      |                     |                |  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| Project Number: DEF19008 Site: RAAF Williams Laverton office  |               |           |            |   |      |                     |                |  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| Laboratory (name, phone, fax no & contact person) ALS: [REDACTED]   |               |           |            |   |      |                     |                |  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| Sample ID   | Laboratory ID | Container | Sampling   |   | Soil | Water               | Ice/Ice Bricks | PFAS 28 (Standard LC)                            | HOLD                |  |  |      |  |      |  |             |  |  |  |  |  |  |
|   |               |           | Date       | Time  |      |                     |                |  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| 1 SW042_20231017  |               | 2 x PFAS  | 17/10/2023 |   | x    |                     | x              | x  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| 2 SW089_20231017  |               | 2 x PFAS  | 17/10/2023 |   | x    |                     | x              |  | x                   |  |  |      |  |      |  |             |  |  |  |  |  |  |
| 3 QC100_20231017  |               | 2 x PFAS  | 17/10/2023 |   | x    |                     | x              | x  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| 4 QC200_20231017  |               | 2 x PFAS  | 17/10/2023 |   | x    |                     | x              |  | Forward to eurofins |  |  |      |  |      |  |             |  |  |  |  |  |  |
| 5 QC300_20231017  |               | 2 x PFAS  | 17/10/2023 |   | x    |                     | x              | x  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| QC500_20231017  |               | 2 x PFAS  | 17/10/2023 |   | x    |                     | x              | x  |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| Sampler: I attest that the proper field sampling procedures were used during the collection of these samples. |               |           |            | Sampler name: (print and signature) Kanishk Singh |      |                     |                | Date: 21/03/23                                   |                     |  |  |      |  |      |  |             |  |  |  |  |  |  |
| Relinquished by (Sampler): (print and signature) Kanishk Singh  |               |           |            | Date 22/03/23                                     |      | Time                |                | Received by (Courier/Lab): (print and signature) |                     |  |  | Date |  | Time |  |             |  |  |  |  |  |  |
| Relinquished by: (print and signature)  |               |           |            | Date  |      | Time                |                | Received by: (print and signature)               |                     |  |  | Date |  | Time |  |             |  |  |  |  |  |  |
| Relinquished by: (print and signature)  |               |           |            | Date  |      | Time                |                | Received by: [REDACTED]                          |                     |  |  | Date |  | Time |  | 18/10 13:40 |  |  |  |  |  |  |

Environmental Division  
Melbourne  
Work Order Reference  
**EM2318509**



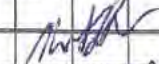

Please supply results electronically in spreadsheet and ESDAT files.

**Turn around time: 5 days**


Please circle

| PM Name [REDACTED]  |               |           |            | Sample Matrix  |   |  |  | Sample preservation |   |                     |  | Analysis |  |  |  |
|---|---------------|-----------|------------|--|---|--|--|---------------------|---|---------------------|--|----------|--|--|--|
| Phone [REDACTED] Mobile [REDACTED]                                |               |           |            | Soil<br>Water<br>Ice/Ice Bricks<br>PFAS 28 (Standard LC)<br>HOLD |   |  |  |                     |   |                     |  |          |  |  |  |
| Address: [REDACTED]   |               |           |            |  |   |  |  |                     |   |                     |  |          |  |  |  |
| PM Email: [REDACTED]  |               |           |            |  |   |  |  |                     |   |                     |  |          |  |  |  |
| Project Number: DEF19008 Site: RAAF Williams Laverton offite      |               |           |            |  |   |  |  |                     |   |                     |  |          |  |  |  |
| Laboratory (name, phone, fax no & contact person) ALS- [REDACTED] |               |           |            |  |   |  |  |                     |   |                     |  |          |  |  |  |
| Sample ID   | Laboratory ID | Container | Sampling   |  |   |  |  |                     |   |                     |  |          |  |  |  |
|   |               |           | Date       | Time   |   |  |  |                     |   |                     |  |          |  |  |  |
| 1 SW042_20231017  |               | 2 x PFAS  | 17/10/2023 |  | x |  |  |                     | x |                     |  |          |  |  |  |
| 2 SW089_20231017  |               | 2 x PFAS  | 17/10/2023 |  | x |  |  |                     |   | x                   |  |          |  |  |  |
| 3 QC100_20231017  |               | 2 x PFAS  | 17/10/2023 |  | x |  |  |                     |   | x                   |  |          |  |  |  |
| 4 QC200_20231017  |               | 2 x PFAS  | 17/10/2023 |  | x |  |  |                     |   | Forward to eurofins |  |          |  |  |  |
| 5 QC300_20231017  |               | 2 x PFAS  | 17/10/2023 |  | x |  |  |                     |   | x                   |  |          |  |  |  |
| 6 QC500_20231017  |               | 2 x PFAS  | 17/10/2023 |  | x |  |  |                     |   | x                   |  |          |  |  |  |

#1036324

Environmental Division  
Melbourne  
Work Order Reference  
**EM2318509**



Sampler: I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler name: (print and signature) [REDACTED]

Date: 21/03/23

Relinquished by (Sampler): (print and signature) Kanishk Singh

Date 22/03/23

Time

Received by (Courier/Lab): (print and signature)

Date

Time

Relinquished by: (print and signature)

Date

Time

Received by: (print and signature)

Date

Time

Relinquished by: (print and signature)

Date

Time

Date

Time

Relinquished by: [REDACTED]

17/10/23 20:03

17/10

13:00

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: 5 days

Please circle

DATE: 19/10/23

TIME: 9am

COURIER:

TEMPERATURE 8.5

ATTEMP TO CHILL: YES

NO

JD



**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

|  |   |   |   |   |  |
|--|---|---|---|---|--|
| <b>Melbourne</b><br>6 Monterey Road<br>Dandenong South<br>VIC 3175<br>Tel: +61 3 8564 5000<br>NATA# 1281<br>Site# 1254 | <b>Geelong</b><br>19/8 Lewalan Street<br>Grovedale<br>VIC 3216<br>Tel: +61 3 8564 5000<br>NATA# 1281<br>Site# 25403 | <b>Sydney</b><br>179 Magowar Road<br>Girraween<br>NSW 2145<br>Tel: +61 2 9900 8400<br>NATA# 1281<br>Site# 18217 | <b>Canberra</b><br>Unit 1,2 Dacre Street<br>Mitchell<br>ACT 2911<br>Tel: +61 2 6113 8091<br>NATA# 1281<br>Site# 25486 | <b>Brisbane</b><br>1/21 Smallwood Place<br>Murarie<br>QLD 4172<br>Tel: +61 7 3902 4600<br>NATA# 1281<br>Site# 20794 | <b>Newcastle</b><br>1/2 Frost Drive<br>Mayfield West NSW 2304<br>Tel: +61 2 4968 8448<br>NATA# 1281<br>Site# 25079 & 25289 |
|--|---|---|---|---|--|

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 888

|  |
|--|
| <b>Perth</b><br>46-48 Banksia Road<br>Welshpool<br>WA 6106<br>Tel: +61 8 6253 4444<br>NATA# 2377<br>Site# 2370 |
|--|

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

|  |   |   |
|--|---|---|
| <b>Auckland</b><br>35 O'Rorke Road<br>Penrose,<br>Auckland 1081<br>Tel: +64 9 526 4551<br>IANZ# 1327 | <b>Christchurch</b><br>43 Detroit Drive<br>Rolleston,<br>Christchurch 7875<br>Tel: +64 3 343 5201<br>IANZ# 1290 | <b>Tauranga</b><br>1277 Cameron Road,<br>Gate Pa,<br>Tauranga 3112<br>Tel: +64 9 525 0588<br>IANZ# 1402 |
|--|---|---|

## Sample Receipt Advice

|                           |                                 |
|---------------------------|---------------------------------|
| <b>Company name:</b>      | Stantec Australia Pty Ltd (VIC) |
| <b>Contact name:</b>      | [REDACTED]                      |
| <b>Project name:</b>      | SW – Offsite                    |
| <b>Project ID:</b>        | VIC_0927_PFASOMP_23             |
| <b>Turnaround time:</b>   | 5 Day                           |
| <b>Date/Time received</b> | Oct 19, 2023 9:00 AM            |
| <b>Eurofins reference</b> | 1036324                         |

## Sample Information

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

## Notes

## Contact

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

[REDACTED] on phone : [REDACTED] by email: [REDACTED]

Results will be delivered electronically via email to Benjamin Kortlever - benjamin.kortlever@cardno.com.

Note: A copy of these results will also be delivered to the general Stantec Australia Pty Ltd (VIC) email address.

**Stantec Australia Pty Ltd**
**Melbourne  
VIC 3000**

**NATA Accredited  
Accreditation Number 1261  
Site Number 1254**

Accredited for compliance with ISO/IEC 17025 – Testing  
NATA is a signatory to the ILAC Mutual Recognition  
Arrangement for the mutual recognition of the  
equivalence of testing, medical testing, calibration,  
inspection, proficiency testing scheme providers and  
reference materials producers reports and certificates.

**Attention:**

**Report** 1036324-W-V2  
**Project name** SW – Offsite  
**Project ID** VIC\_0927\_PFASOMP\_23  
**Received Date** Oct 19, 2023

| Client Sample ID  | LOR  | Unit | 0927_QC200_2<br>0231017   |
|---|------|------|---------------------------|
| <b>Sample Matrix</b>  |      |      | <b>Water</b>              |
| <b>Eurofins Sample No.</b>  |      |      | <b>M23-<br/>Oc0043322</b> |
| <b>Date Sampled</b>   |      |      | <b>Oct 17, 2023</b>       |
| Test/Reference  | LOR  | Unit |                           |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>                              |      |      |                           |
| Perfluorobutanoic acid (PFBA) <sup>N11</sup>                                | 0.05 | ug/L | < 0.05                    |
| Perfluoropentanoic acid (PFPeA) <sup>N11</sup>                              | 0.01 | ug/L | 0.01                      |
| Perfluorohexanoic acid (PFHxA) <sup>N11</sup>                               | 0.01 | ug/L | 0.02                      |
| Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>                              | 0.01 | ug/L | < 0.01                    |
| Perfluorooctanoic acid (PFOA) <sup>N11</sup>                                | 0.01 | ug/L | <sup>N09</sup> 0.01       |
| Perfluorononanoic acid (PFNA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                    |
| Perfluorodecanoic acid (PFDA) <sup>N11</sup>                                | 0.01 | ug/L | < 0.01                    |
| Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                    |
| Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>                            | 0.01 | ug/L | < 0.01                    |
| Perfluorotridecanoic acid (PFTeDA) <sup>N15</sup>                           | 0.01 | ug/L | < 0.01                    |
| Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>                         | 0.01 | ug/L | < 0.01                    |
| 13C4-PFBA (surr.)   | 1    | %    | 63                        |
| 13C5-PFPeA (surr.)  | 1    | %    | 109                       |
| 13C5-PFHxA (surr.)  | 1    | %    | 129                       |
| 13C4-PFHpA (surr.)  | 1    | %    | 144                       |
| 13C8-PFOA (surr.)   | 1    | %    | 112                       |
| 13C5-PFNA (surr.)   | 1    | %    | 135                       |
| 13C6-PFDA (surr.)   | 1    | %    | 123                       |
| 13C2-PFUnDA (surr.)   | 1    | %    | 81                        |
| 13C2-PFDoDA (surr.)   | 1    | %    | 52                        |
| 13C2-PFTeDA (surr.)   | 1    | %    | 34                        |
| <b>Perfluoroalkyl sulfonamido substances</b>                                |      |      |                           |
| Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>                           | 0.05 | ug/L | < 0.05                    |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>            | 0.05 | ug/L | < 0.05                    |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>             | 0.05 | ug/L | < 0.05                    |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) <sup>N11</sup> | 0.05 | ug/L | < 0.05                    |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) <sup>N11</sup>  | 0.05 | ug/L | < 0.05                    |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>    | 0.05 | ug/L | < 0.05                    |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>   | 0.05 | ug/L | < 0.05                    |
| 13C8-FOSA (surr.)   | 1    | %    | 99                        |
| D3-N-MeFOSA (surr.)   | 1    | %    | 10                        |

|   |      |      |                                 |
|---|------|------|---------------------------------|
| <b>Client Sample ID</b>   |      |      | <b>0927_QC200_2<br/>0231017</b> |
| <b>Sample Matrix</b>  |      |      | <b>Water</b>                    |
| <b>Eurofins Sample No.</b>  |      |      | <b>M23-<br/>Oc0043322</b>       |
| <b>Date Sampled</b>   |      |      | <b>Oct 17, 2023</b>             |
| Test/Reference  | LOR  | Unit |                                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                          |      |      |                                 |
| D5-N-EtFOSA (surr.)   | 1    | %    | 10                              |
| D7-N-MeFOSE (surr.)   | 1    | %    | 31                              |
| D9-N-EtFOSE (surr.)   | 1    | %    | 29                              |
| D5-N-EtFOSAA (surr.)  | 1    | %    | 68                              |
| D3-N-MeFOSAA (surr.)  | 1    | %    | 92                              |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                          |      |      |                                 |
| Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>                    | 0.01 | ug/L | < 0.01                          |
| Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                          |
| Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01                          |
| Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01                          |
| Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>                   | 0.01 | ug/L | <sup>N09</sup> 0.06             |
| Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>                  | 0.01 | ug/L | < 0.01                          |
| Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>                    | 0.01 | ug/L | <sup>N09</sup> 0.16             |
| Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>                    | 0.01 | ug/L | < 0.01                          |
| 13C3-PFBS (surr.)   | 1    | %    | 142                             |
| 18O2-PFHxS (surr.)  | 1    | %    | 119                             |
| 13C8-PFOS (surr.)   | 1    | %    | 120                             |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>                    |      |      |                                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                          |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) <sup>N11</sup>     | 0.05 | ug/L | < 0.05                          |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>    | 0.01 | ug/L | < 0.01                          |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup> | 0.01 | ug/L | < 0.01                          |
| 13C2-4:2 FTSA (surr.)   | 1    | %    | 143                             |
| 13C2-6:2 FTSA (surr.)   | 1    | %    | 140                             |
| 13C2-8:2 FTSA (surr.)   | 1    | %    | 109                             |
| 13C2-10:2 FTSA (surr.)  | 1    | %    | 60                              |
| <b>PFASs Summations</b>   |      |      |                                 |
| Sum (PFHxS + PFOS)*   | 0.01 | ug/L | 0.22                            |
| Sum of US EPA PFAS (PFOS + PFOA)*                                     | 0.01 | ug/L | 0.17                            |
| Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*                           | 0.01 | ug/L | 0.23                            |
| Sum of WA DWER PFAS (n=10)*   | 0.05 | ug/L | 0.26                            |
| Sum of PFASs (n=30)*  | 0.1  | ug/L | 0.26                            |



**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

| Description   | Testing Site | Extracted    | Holding Time |
|---|--------------|--------------|--------------|
| Per- and Polyfluoroalkyl Substances (PFASs)                       |              |              |              |
| Perfluoroalkyl carboxylic acids (PFCAs)                           | Melbourne    | Oct 20, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonamido substances                             | Melbourne    | Oct 20, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| Perfluoroalkyl sulfonic acids (PFSAs)                             | Melbourne    | Oct 20, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)                      | Melbourne    | Oct 20, 2023 | 28 Days      |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |
| PFASs Summations  | Melbourne    | Oct 19, 2023 |              |
| - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS) |              |              |              |

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

|  |
|--|
| <b>Perth</b><br>46-48 Banksia Road<br>Welshpool<br>WA 6106<br>Tel: +61 8 6253 4444<br>NATA# 2377<br>Site# 2370 |
|--|

|  |   |   |
|--|---|---|
| <b>Auckland</b><br>35 O'Rorke Road<br>Penrose,<br>Auckland 1061<br>Tel: +64 9 526 4551<br>IANZ# 1327 | <b>Christchurch</b><br>43 Detroit Drive<br>Rolleston,<br>Christchurch 7675<br>Tel: +64 3 343 5201<br>IANZ# 1290 | <b>Tauranga</b><br>1277 Cameron Road,<br>Gate Pa,<br>Tauranga 3112<br>Tel: +64 9 525 0568<br>IANZ# 1402 |
|--|---|---|

|  |                                     |                   |           |                      |                      |
|--|-------------------------------------|-------------------|-----------|----------------------|----------------------|
| <b>Company Name:</b>                                     | Stantec Australia Pty Ltd (VIC)     | <b>Order No.:</b> | 304300114 | <b>Received:</b>     | Oct 19, 2023 9:00 AM |
| <b>Address:</b>  | [REDACTED]<br>Melbourne<br>VIC 3000 | <b>Report #:</b>  | 1036324   | <b>Due:</b>          | Oct 26, 2023         |
| <b>Project Name:</b>                                     | SW – Offsite                        | <b>Phone:</b>     |           | <b>Priority:</b>     | 5 Day                |
| <b>Project ID:</b>                                       | VIC_0927_PFAASOMP_23                | <b>Fax:</b>       |           | <b>Contact Name:</b> | [REDACTED]           |
| <b>Eurofins Analytical Services Manager :</b> [REDACTED] |                                     |                   |           |                      |                      |

| <b>Sample Detail</b>                           |                     |              |               |        |               | Per- and Polyfluoroalkyl Substances (PFASs) |
|--|---------------------|--------------|---------------|--------|---------------|---|
| Melbourne Laboratory - NATA # 1261 Site # 1254 |                     |              |               |        |               | X   |
| External Laboratory                            |                     |              |               |        |               |   |
| No   | Sample ID           | Sample Date  | Sampling Time | Matrix | LAB ID        |   |
| 1  | 0927_QC200_20231017 | Oct 17, 2023 |               | Water  | M23-Oc0043322 | X   |
| <b>Test Counts</b>                             |                     |              |               |        |               | 1   |

## Internal Quality Control Review and Glossary

### General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry weight basis unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
- For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
- Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
- This report replaces any interim results previously issued.

### Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is 7 days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

### Units

|  |   |  |
|--|---|--|
| <b>mg/kg:</b> milligrams per kilogram            | <b>mg/L:</b> milligrams per litre         | <b>µg/L:</b> micrograms per litre  |
| <b>ppm:</b> parts per million                    | <b>ppb:</b> parts per billion             | <b>%:</b> Percentage   |
| <b>org/100 mL:</b> Organisms per 100 millilitres | <b>NTU:</b> Nephelometric Turbidity Units | <b>MPN/100 mL:</b> Most Probable Number of organisms per 100 millilitres |
| <b>CFU:</b> Colony forming unit                  |   |  |

### Terms

|                         |   |
|-------------------------|---|
| <b>APHA</b>             | American Public Health Association  |
| <b>CEC</b>              | Cation Exchange Capacity  |
| <b>COC</b>              | Chain of Custody  |
| <b>CP</b>               | Client Parent - QC was performed on samples pertaining to this report   |
| <b>CRM</b>              | Certified Reference Material (ISO17034) - reported as percent recovery.   |
| <b>Dry</b>              | Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.  |
| <b>Duplicate</b>        | A second piece of analysis from the same sample and reported in the same units as the result to show comparison.  |
| <b>LOR</b>              | Limit of Reporting.   |
| <b>LCS</b>              | Laboratory Control Sample - reported as percent recovery.   |
| <b>Method Blank</b>     | In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.  |
| <b>NCP</b>              | Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.  |
| <b>RPD</b>              | Relative Percent Difference between two Duplicate pieces of analysis.   |
| <b>SPIKE</b>            | Addition of the analyte to the sample and reported as percentage recovery.  |
| <b>SRA</b>              | Sample Receipt Advice   |
| <b>Surr - Surrogate</b> | The addition of a like compound to the analyte target and reported as percentage recovery.  |
| <b>TBTO</b>             | Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits. |
| <b>TCLP</b>             | Toxicity Characteristic Leaching Procedure  |
| <b>TEQ</b>              | Toxic Equivalency Quotient or Total Equivalence   |
| <b>QSM</b>              | US Department of Defense Quality Systems Manual Version 5.4   |
| <b>US EPA</b>           | United States Environmental Protection Agency   |
| <b>WA DWER</b>          | Sum of PFBA, PFPaA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA   |

### QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30%; however the following acceptance guidelines are equally

applicable: Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries above the QC limit designated in QSM 5.4, where no positive PFAS results have been reported, have been reviewed, and no data was affected.

### QC Data General Comments

- Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

**Quality Control Results**

| Test   | Units | Result 1 |  | Acceptance Limits | Pass Limits | Qualifying Code |
|--|-------|----------|--|-------------------|-------------|-----------------|
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |       |          |  |                   |             |                 |
| Perfluorooctane sulfonamide (FOSA)                           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                 |       |          |  |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>Method Blank</b>  |       |          |  |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |       |          |  |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | ug/L  | < 0.05   |  | 0.05              | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | ug/L  | < 0.01   |  | 0.01              | Pass        |                 |
| <b>LCS - % Recovery</b>                                      |       |          |  |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |       |          |  |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                                | %     | 81       |  | 50-150            | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                              | %     | 82       |  | 50-150            | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                               | %     | 88       |  | 50-150            | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                              | %     | 84       |  | 50-150            | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                                | %     | 104      |  | 50-150            | Pass        |                 |
| Perfluorononanoic acid (PFNA)                                | %     | 90       |  | 50-150            | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                                | %     | 85       |  | 50-150            | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | %     | 90       |  | 50-150            | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                            | %     | 92       |  | 50-150            | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                          | %     | 72       |  | 50-150            | Pass        |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | %     | 87       |  | 50-150            | Pass        |                 |

| Test   | Units         | Result 1  |       |          | Acceptance Limits | Pass Limits       | Qualifying Code |                 |
|--|---------------|-----------|-------|----------|-------------------|-------------------|-----------------|-----------------|
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | %             | 83        |       |          | 50-150            | Pass              |                 |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | %             | 83        |       |          | 50-150            | Pass              |                 |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | %             | 83        |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | %             | 111       |       |          | 50-150            | Pass              |                 |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | %             | 109       |       |          | 50-150            | Pass              |                 |                 |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | %             | 76        |       |          | 50-150            | Pass              |                 |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | %             | 88        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonic acids (PFASs)</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanesulfonic acid (PFBS)                          | %             | 84        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorononanesulfonic acid (PFNS)                          | %             | 99        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropropanesulfonic acid (PFPrS)                        | %             | 79        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoropentanesulfonic acid (PFPeS)                        | %             | 75        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorohexanesulfonic acid (PFHxS)                         | %             | 93        |       |          | 50-150            | Pass              |                 |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                        | %             | 80        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorooctanesulfonic acid (PFOS)                          | %             | 76        |       |          | 50-150            | Pass              |                 |                 |
| Perfluorodecanesulfonic acid (PFDS)                          | %             | 92        |       |          | 50-150            | Pass              |                 |                 |
| <b>LCS - % Recovery</b>                                      |               |           |       |          |                   |                   |                 |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>           |               |           |       |          |                   |                   |                 |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | %             | 76        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | %             | 83        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | %             | 84        |       |          | 50-150            | Pass              |                 |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | %             | 75        |       |          | 50-150            | Pass              |                 |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |                   | Acceptance Limits | Pass Limits     | Qualifying Code |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>               |               |           |       |          |                   |                   |                 |                 |
| Perfluorobutanoic acid (PFBA)                                | M23-Oc0044495 | NCP       | %     | 75       |                   | 50-150            | Pass            |                 |
| Perfluoropentanoic acid (PFPeA)                              | M23-Oc0044495 | NCP       | %     | 76       |                   | 50-150            | Pass            |                 |
| Perfluorohexanoic acid (PFHxA)                               | M23-Oc0044495 | NCP       | %     | 79       |                   | 50-150            | Pass            |                 |
| Perfluoroheptanoic acid (PFHpA)                              | M23-Oc0044495 | NCP       | %     | 72       |                   | 50-150            | Pass            |                 |
| Perfluorooctanoic acid (PFOA)                                | M23-Oc0044495 | NCP       | %     | 97       |                   | 50-150            | Pass            |                 |
| Perfluorononanoic acid (PFNA)                                | M23-Oc0044495 | NCP       | %     | 92       |                   | 50-150            | Pass            |                 |
| Perfluorodecanoic acid (PFDA)                                | M23-Oc0044495 | NCP       | %     | 82       |                   | 50-150            | Pass            |                 |
| Perfluoroundecanoic acid (PFUnDA)                            | M23-Oc0044495 | NCP       | %     | 80       |                   | 50-150            | Pass            |                 |
| Perfluorododecanoic acid (PFDoDA)                            | M23-Oc0044495 | NCP       | %     | 84       |                   | 50-150            | Pass            |                 |
| Perfluorotridecanoic acid (PFTrDA)                           | M23-Oc0045729 | NCP       | %     | 59       |                   | 50-150            | Pass            |                 |
| Perfluorotetradecanoic acid (PFTeDA)                         | M23-Oc0044495 | NCP       | %     | 78       |                   | 50-150            | Pass            |                 |
| <b>Spike - % Recovery</b>                                    |               |           |       |          |                   |                   |                 |                 |
| <b>Perfluoroalkyl sulfonamido substances</b>                 |               |           |       |          |                   |                   |                 |                 |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Oc0044495 | NCP       | %     | 76       |                   | 50-150            | Pass            |                 |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Oc0044495 | NCP       | %     | 93       |                   | 50-150            | Pass            |                 |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Oc0044495 | NCP       | %     | 82       |                   | 50-150            | Pass            |                 |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Oc0044495 | NCP       | %     | 100      |                   | 50-150            | Pass            |                 |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Oc0044495 | NCP       | %     | 95       |                   | 50-150            | Pass            |                 |

| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
|--|---------------|-----------|-------|----------|----------|-----|-------------------|-------------|-----------------|
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)  | M23-Oc0044495 | NCP       | %     | 72       |          |     | 50-150            | Pass        |                 |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) | M23-Oc0044495 | NCP       | %     | 77       |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl sulfonic acids (PFSA's)</b>              |               |           |       | Result 1 |          |     |                   |             |                 |
| Perfluorobutanesulfonic acid (PFBS)                        | M23-Oc0044495 | NCP       | %     | 75       |          |     | 50-150            | Pass        |                 |
| Perfluorononanesulfonic acid (PFNS)                        | M23-Oc0044495 | NCP       | %     | 78       |          |     | 50-150            | Pass        |                 |
| Perfluoropropanesulfonic acid (PFPrS)                      | M23-Oc0044495 | NCP       | %     | 70       |          |     | 50-150            | Pass        |                 |
| Perfluoropentanesulfonic acid (PFPeS)                      | M23-Oc0044495 | NCP       | %     | 63       |          |     | 50-150            | Pass        |                 |
| Perfluorohexanesulfonic acid (PFHxS)                       | M23-Oc0044495 | NCP       | %     | 84       |          |     | 50-150            | Pass        |                 |
| Perfluoroheptanesulfonic acid (PFHpS)                      | M23-Oc0044495 | NCP       | %     | 70       |          |     | 50-150            | Pass        |                 |
| Perfluorooctanesulfonic acid (PFOS)                        | M23-Oc0044495 | NCP       | %     | 70       |          |     | 50-150            | Pass        |                 |
| Perfluorodecanesulfonic acid (PFDS)                        | M23-Oc0044495 | NCP       | %     | 64       |          |     | 50-150            | Pass        |                 |
| <b>Spike - % Recovery</b>                                  |               |           |       |          |          |     |                   |             |                 |
| <b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>       |               |           |       | Result 1 |          |     |                   |             |                 |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)        | M23-Oc0044495 | NCP       | %     | 73       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)         | M23-Oc0044495 | NCP       | %     | 84       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)        | M23-Oc0044495 | NCP       | %     | 82       |          |     | 50-150            | Pass        |                 |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)     | M23-Oc0044495 | NCP       | %     | 69       |          |     | 50-150            | Pass        |                 |
| Test   | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Duplicate</b>   |               |           |       |          |          |     |                   |             |                 |
| <b>Perfluoroalkyl carboxylic acids (PFCAs)</b>             |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Perfluorobutanoic acid (PFBA)                              | M23-Oc0043367 | NCP       | ug/L  | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Perfluoropentanoic acid (PFPeA)                            | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorohexanoic acid (PFHxA)                             | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroheptanoic acid (PFHpA)                            | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorooctanoic acid (PFOA)                              | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorononanoic acid (PFNA)                              | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorodecanoic acid (PFDA)                              | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluoroundecanoic acid (PFUnDA)                          | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorododecanoic acid (PFDoDA)                          | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotridecanoic acid (PFTTrDA)                        | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |
| Perfluorotetradecanoic acid (PFTEDA)                       | M23-Oc0043367 | NCP       | ug/L  | < 0.01   | < 0.01   | <1  | 30%               | Pass        |                 |

| Duplicate  |               |     |      |          |          |     |     |      |
|--|---------------|-----|------|----------|----------|-----|-----|------|
| Perfluoroalkyl sulfonamido substances                        |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorooctane sulfonamide (FOSA)                           | M23-Oc0043367 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)            | M23-Oc0043367 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)             | M23-Oc0043367 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) | M23-Oc0043367 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)  | M23-Oc0043367 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)    | M23-Oc0043367 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)   | M23-Oc0043367 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| Perfluoroalkyl sulfonic acids (PFSA's)                       |               |     |      | Result 1 | Result 2 | RPD |     |      |
| Perfluorobutanesulfonic acid (PFBS)                          | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorononanesulfonic acid (PFNS)                          | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluoropropanesulfonic acid (PFPrS)                        | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluoropentanesulfonic acid (PFPeS)                        | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorohexanesulfonic acid (PFHxS)                         | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluoroheptanesulfonic acid (PFHpS)                        | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorooctanesulfonic acid (PFOS)                          | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Perfluorodecanesulfonic acid (PFDS)                          | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| Duplicate  |               |     |      |          |          |     |     |      |
| n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)                |               |     |      | Result 1 | Result 2 | RPD |     |      |
| 1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)          | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)           | M23-Oc0043367 | NCP | ug/L | < 0.05   | < 0.05   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)          | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |
| 1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)       | M23-Oc0043367 | NCP | ug/L | < 0.01   | < 0.01   | <1  | 30% | Pass |

**Comments**

This report has been revised (V2) to correct sample name to 0927\_QC200\_20231017, per client request AM.



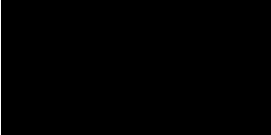
**Sample Integrity**

|   |     |
|---|-----|
| Custody Seals Intact (if used)  | N/A |
| Attempt to Chill was evident  | Yes |
| Sample correctly preserved  | Yes |
| Appropriate sample containers have been used                            | Yes |
| Sample containers for volatile analysis received with minimal headspace | Yes |
| Samples received within HoldingTime                                     | Yes |
| Some samples have been subcontracted                                    | No  |

**Qualifier Codes/Comments**

| Code | Description  |
|------|--|
| N09  | Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.   |
| N11  | Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds. |
| N15  | Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).                             |

**Authorised by:**

 Analytical Services Manager  
 Senior Analyst-PFAS  


**Managing Director**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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APPENDIX

# D

FIELD RECORDS AND CALIBRATION  
CERTIFICATES



now



| Event | Monitoring Well ID | Alternative ID | Monitoring Well Status | Date       | Easting   | Northing    | Top of Well Casing Elevation (mAHD) | Depth to Base of Monitoring Well (mbtoc) | Depth to Groundwater (mbtoc) | Corrected Water Elevation (mAHD) | Top of Hydrasleeve (mbtoc) | Qualitative Turbidity | Observations  | Temp (°C) | DO (mg/L) | EC (µS/cm) | pH   | Field Redox (mV) | Corrected Redox (mV) | TDS (mg/L) |   |
|-------|--------------------|----------------|------------------------|------------|-----------|-------------|-------------------------------------|--|------------------------------|----------------------------------|----------------------------|-----------------------|---|-----------|-----------|------------|------|------------------|----------------------|------------|---|
| E2    | MW100              | -              | Gauge Only             | 31/07/2023 | 302155.42 | 5806515.51  | 12.640                              | 10.810                                   | 5.426                        | 7.214                            | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          | - |
| E2    | MW101              | -              | Gauge Only             | 31/07/2023 | 302391.57 | 5806651.44  | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, rusted shut   | -         | -         | -          | -    | -                | -                    | -          | - |
| E2    | MW102              | -              | Gauge and Sample       | 31/07/2023 | 302687.38 | 5806734.66  | 10.986                              | 11.800                                   | 4.379                        | 6.607                            | 10.800                     | Low                   | Clear water colour  | 16.4      | 3.49      | 8404       | 7.53 | -6.2             | 193.8                | 5463       |   |
| E2    | MW103              | -              | Gauge and Sample       | 31/07/2023 | 302729.82 | 5806598.99  | 10.785                              | 6.840                                    | 4.717                        | 6.068                            | 5.840                      | Low                   | Clear, slightly cloudy, no odour or sheen   | 15.1      | 1.72      | 3221       | 7.84 | 3.4              | 203.4                | 2094       |   |
| E2    | MW104              | -              | Gauge Only             | 31/07/2023 | 302867.02 | 5806626.67  | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, rusted shut   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW105              | -              | Gauge and Sample       | 31/07/2023 | 302921.77 | 5806649.94  | 10.477                              | 7.790                                    | 4.335                        | 6.142                            | 6.790                      | Low                   | Clear, no odour or sheen  | 15.6      | 1.60      | 2852       | 7.37 | 86.4             | 286.4                | 1854       |   |
| E2    | MW106              | -              | Gauge Only             | 31/07/2023 | 303030.84 | 5806668.96  | 10.637                              | 6.490                                    | 4.106                        | 6.531                            | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW107              | -              | Gauge and Sample       | 31/07/2023 | 303054.13 | 5806738.37  | 11.628                              | 8.660                                    | 6.093                        | 5.535                            | 7.660                      | Low                   | No odour or sheen. Minor grey suspended solids present at base of sleeve.   | 15.6      | 1.38      | 6053       | 7.00 | -52.0            | 148.0                | 3934       |   |
| E2    | MW108              | -              | Gauge Only             | 31/07/2023 | 303192.38 | 5806779.71  | 10.858                              | 8.180                                    | 5.640                        | 5.218                            | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW109              | -              | Gauge and Sample       | 31/07/2023 | 303283.85 | 5806787.69  | 11.054                              | 7.790                                    | 5.795                        | 5.259                            | 6.790                      | Medium                | Pale brown, no nuisance organisms or vegetation, no odour or sheen. Observed orange brown suspended solids in bottom quarter of sleeve. | 16.2      | 0.41      | 1087       | 6.72 | 67.4             | 267.4                | 707        |   |
| E2    | MW110              | -              | Gauge and Sample       | 31/07/2023 | 303500.83 | 5806961.55  | 11.410                              | 10.000                                   | 6.335                        | 5.075                            | 9.000                      | Low                   | Clear, no odour or sheen  | 15.0      | 3.36      | 4908       | 7.70 | 50.1             | 250.1                | 3190       |   |
| E2    | MW111              | -              | Gauge Only             | 31/07/2023 | 303549.68 | 5807508.41  | 11.428                              | 7.750                                    | 4.696                        | 6.732                            | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW112              | -              | Gauge Only             | 8/1/2023   | 303813.43 | 5807643.46  | 9.201                               | 8.620                                    | 3.519                        | 5.682                            | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW113              | -              | Gauge Only             | 8/1/2023   | 303790.74 | 5808047.06  | 13.458                              | 10.370                                   | 6.605                        | 6.853                            | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW114              | -              | Gauge Only             | 8/1/2023   | 303423.22 | 5808108.35  | 11.779                              | 8.820                                    | 1.850                        | 9.929                            | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW115              | -              | Gauge and Sample       | 31/07/2023 | 302706.34 | 5807872.56  | 21.118                              | 15.600                                   | 9.448                        | 11.670                           | 14.600                     | Low                   | Clear, no odour or sheen  | 13.4      | 1.21      | 4385       | 7.76 | 121.0            | 321.0                | 2850       |   |
| E2    | MW116              | -              | Gauge Only             | 31/07/2023 | 302540.47 | 5807566.23  | 14.862                              | 12.670                                   | 3.679                        | 11.183                           | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW117              | -              | Gauge and Sample       | 31/07/2023 | 302685.11 | 5807194.17  | 14.118                              | 9.650                                    | 5.978                        | 8.140                            | 8.650                      | Medium                | Cloudy, brown, no odour or sheen  | 16.9      | 3.50      | 6508       | 7.55 | -14.8            | 185.2                | 4230       |   |
| E2    | MW118              | -              | Gauge and Sample       | 31/07/2023 | 302689.62 | 5807069.21  | 13.073                              | 7.570                                    | 5.133                        | 7.940                            | 6.570                      | Low                   | Clear, no odour or sheen  | 18.9      | 3.25      | 4322       | 8.02 | -28.7            | 171.3                | 2809       |   |
| E2    | MW119              | -              | Gauge Only             | 31/07/2023 | -         | -           | -                                   | -  | -                            | -                                | -                          | -                     | Unable to open, damaged bolts on the gatic lid.   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW120              | -              | Gauge and Sample       | 31/07/2023 | 302498.3  | 5806688.12  | 11.316                              | 8.870                                    | 4.000                        | 7.316                            | 8.000                      | Low                   | Cloudy, no odour or sheen   | 16.6      | 0.89      | 2154       | 8.69 | -26.1            | 173.9                | 1400       |   |
| E2    | MW121              | -              | Gauge and Sample       | 31/07/2023 | 302599.82 | 5805814.08  | 4.840                               | 9.850                                    | 1.082                        | 3.758                            | 8.850                      | Clear                 | Minimal sediment at base of sleeve which was excluded from sample. No odour or sheen.   | 17.2      | 5.18      | 6520       | 7.08 | 104.3            | 304.3                | 4238       |   |
| E2    | MW122              | -              | Gauge Only             | 31/07/2023 | -         | -           | -                                   | -  | -                            | -                                | -                          | -                     | Well not located and appears to have been buried. Potentially destroyed.  | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW123              | -              | Gauge and Sample       | 31/07/2023 | 303075.85 | 5805876.09  | 5.970                               | 8.460                                    | 2.669                        | 3.301                            | 7.460                      | Low                   | Clear, no odour or sheen  | 14.1      | 5.57      | 4546       | 6.89 | 140.3            | 340.3                | 2955       |   |
| E2    | MW124              | -              | Gauge and Sample       | 31/07/2023 | 302369.98 | 5806321.5   | 10.790                              | 7.320                                    | 4.448                        | 6.342                            | 6.320                      | Low                   | Clear, no odour or sheen  | 16.3      | 2.39      | 1056       | 7.20 | 88.6             | 288.6                | 686        |   |
| E2    | MW125              | -              | Gauge Only             | 31/07/2023 | 302572.42 | 5806333.83  | 11.207                              | 8.530                                    | 5.467                        | 5.740                            | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW126              | -              | Gauge and Sample       | 31/07/2023 | 302781.66 | 5806362.9   | 9.224                               | 7.020                                    | 4.046                        | 5.178                            | 6.020                      | Low                   | Clear, no odour or sheen  | 15.8      | 5.38      | 3963       | 7.39 | 114.4            | 314.4                | 2576       |   |
| E2    | MW127              | -              | Gauge Only             | 31/07/2023 | -         | -           | -                                   | -  | -                            | -                                | -                          | -                     | Well not located appears to have been covered by asphalt. Potentially destroyed.  | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW128              | -              | Gauge Only             | 31/07/2023 | 301547.12 | 5806935.66  | 15.031                              | 9.840                                    | 4.638                        | 10.393                           | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW129              | -              | Gauge and Sample       | 31/07/2023 | 300969.01 | 5806620.611 | -                                   | -  | -                            | -                                | -                          | -                     | Unable to locate. Potentially destroyed   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW130              | -              | Gauge and Sample       | 31/07/2023 | 301059.66 | 5806873.65  | 15.824                              | 9.570                                    | 4.713                        | 11.111                           | 8.570                      | Low                   | Cloudy, no odour or sheen   | 16.6      | 2.78      | 9554       | 7.87 | -7.8             | 192.2                | 6210       |   |
| E2    | MW131              | -              | Gauge and Sample       | 31/07/2023 | 300802.92 | 5806882.37  | 17.146                              | 10.210                                   | 5.992                        | 11.154                           | 9.210                      | Low                   | Clear with black particles at bottom of sleeve.   | 16.0      | 0.63      | 13228      | 7.39 | -68.6            | 131.4                | 8598       |   |
| E2    | MW132              | -              | Gauge Only             | 31/07/2023 | 301146.76 | 5807249.68  | 16.547                              | 8.730                                    | 4.590                        | 11.957                           | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW133              | -              | Gauge Only             | 31/07/2023 | 301391.78 | 5807159.24  | 16.202                              | 9.240                                    | 4.909                        | 11.293                           | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW134              | -              | Gauge Only             | 31/07/2023 | 302531.45 | 5807531.45  | 14.490                              | 8.650                                    | 3.375                        | 11.115                           | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW135              | -              | Gauge Only             | 31/07/2023 | 301824.03 | 5807652.59  | 16.789                              | 7.920                                    | 4.028                        | 12.761                           | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW136              | -              | Gauge Only             | 31/07/2023 | 301361.32 | 5807556.68  | 17.449                              | 6.340                                    | 5.000                        | 12.449                           | -                          | -                     | -   | -         | -         | -          | -    | -                | -                    | -          |   |
| E2    | MW137              | -              | Gauge and Sample       | 31/07/2023 | 300747.95 | 5807149.67  | 18.026                              | 9.390                                    | 6.346                        | 11.680                           | 8.390                      | Low                   | Cloudy, no odour or sheen   | 16.8      | 2.47      | 4519       | 7.80 | -14.5            | 185.5                | 2937       |   |
| E2    | MW138              | -              | Gauge and Sample       | 31/07/2023 | 303491.26 | 5806852.41  | 10.720                              | 8.700                                    | 5.668                        | 5.052                            | 7.700                      | Medium                | Pale brown, no nuisance organisms or vegetation, no odour or sheen.   | 16.7      | 2.95      | 2563       | 7.62 | 79.0             | 279.0                | 1666       |   |
| E2    | MW139              | -              | Gauge and Sample       | 31/07/2023 | 303450.4  | 5806941.05  | 11.076                              | 9.300                                    | 5.796                        | 5.280                            | 8.300                      | Medium                | Pale brown, brown particles bottom of hydrasleeve, no odour or sheen  | 18.0      | 3.27      | 5392       | 7.30 | 100.4            | 300.4                | 3505       |   |
| E2    | MW140              | -              | Gauge and Sample       | 31/07/2023 | 303495.33 | 5807050.82  | 10.437                              | 9.250                                    | 5.031                        | 5.406                            | 8.250                      | Medium                | Suspended solids present within bottom 10% of sleeve. Sulfuric odour, no vegetation, sheen or organisms                                 | 16.6      | 1.76      | 8536       | 7.13 | 37.9             | 237.9                | 5548       |   |

| Event | Monitoring Well ID | Alternative ID | Monitoring Well Status | Date       | Easting    | Northing    | Top of Well Casing Elevation (mAHD) | Depth to Base of Monitoring Well (mbtoc) | Depth to Groundwater (mbtoc) | Corrected Water Elevation (mAHD) | Top of Hydrasleeve (mbtoc) | Qualitative Turbidity | Observations   | Temp (°C) | DO (mg/L) | EC (µS/cm) | pH   | Field Redox (mV) | Corrected Redox (mV) | TDS (mg/L) |
|-------|--------------------|----------------|------------------------|------------|------------|-------------|-------------------------------------|--|------------------------------|----------------------------------|----------------------------|-----------------------|--|-----------|-----------|------------|------|------------------|----------------------|------------|
| E2    | MW144              | GW130/1        | Gauge and Sample       | 31/07/2023 | 303197.922 | 5807203.456 | 12.656                              | 10.000                                   | 5.768                        | 6.888                            | 9.000                      | Low                   | Clear, no odour or sheen   | 16.0      | 3.44      | 8490       | 7.54 | 51.1             | 251.1                | 5519       |
| E2    | MW145              | GW130/2        | Gauge Only             | 31/07/2023 | 303159.174 | 5807344.231 | 12.359                              | 9.910                                    | 4.590                        | 7.769                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW146              | GW130/3        | Gauge and Sample       | 31/07/2023 | 303019.4   | 5807342.741 | 13.145                              | 13.040                                   | 4.745                        | 8.400                            | 12.040                     | Low                   | Clear, cloudy, no odour or sheen   | 16.4      | 2.39      | 7769       | 7.35 | 4.4              | 204.4                | 5050       |
| E2    | MW152              | GW155/6        | Gauge and Sample       | 31/07/2023 | 302280.15  | 5806408.9   | 11.638                              | 8.000                                    | 4.366                        | 7.272                            | 7.000                      | Medium                | Brown, no odour or sheen   | 16.6      | 3.10      | 674        | 8.40 | 58.9             | 258.9                | 438        |
| E2    | MW154              | GW2/1          | Gauge Only             | 31/07/2023 | 302498.9   | 5806568.02  | 11.550                              | 11.967                                   | 4.927                        | 6.623                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW155              | GW2/2          | Gauge and Sample       | 31/07/2023 | 302443.03  | 5806586.26  | 11.646                              | 8.100                                    | 4.904                        | 6.742                            | 7.100                      | Low                   | Clear, no odour or sheen   | 16.6      | 3.10      | 674        | 8.40 | 58.9             | 258.9                | 438        |
| E2    | MW157              | GW2/4          | Gauge Only             | 31/07/2023 | 302451.17  | 5806532.54  | 11.581                              | 7.745                                    | 4.689                        | 6.892                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW159              | GW2/6          | Gauge Only             | 31/07/2023 | 302446.78  | 5806497.86  | 11.096                              | 7.038                                    | 4.067                        | 7.029                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW163              | GW34/1         | Gauge and Sample       | 31/07/2023 | 302793.48  | 5807022.21  | 12.870                              | 11.140                                   | 5.250                        | 7.620                            | 10.140                     | Low                   | Clear, no odour or sheen   | 18.8      | 0.55      | 2667       | 7.84 | -126.3           | 73.7                 | 1734       |
| E2    | MW164              | GW36/1         | Gauge Only             | 31/07/2023 | 302732.68  | 5807188.71  | 13.200                              | 10.858                                   | 5.245                        | 7.955                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW165              | GW514/1        | Gauge Only             | 31/07/2023 | 303466.97  | 5807309.33  | 10.600                              | 13.250                                   | 3.838                        | 6.762                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW168              | GW582/2        | Gauge Only             | 31/07/2023 | 302501.41  | 5806491.89  | 11.446                              | 7.982                                    | 4.868                        | 6.578                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW171              | GW582/5        | Gauge Only             | 31/07/2023 | 302453.5   | 5806452.14  | 12.422                              | 8.745                                    | 5.536                        | 6.886                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW173              | GW582/7        | Gauge Only             | 31/07/2023 | 302479.95  | 5806461.83  | 12.255                              | 8.900                                    | 5.519                        | 6.736                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW175              | GW598/1        | Gauge Only             | 31/07/2023 | 303486.44  | 5807298.83  | 10.600                              | 12.220                                   | 3.902                        | 6.698                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW176              | GW7/1          | Gauge Only             | 31/07/2023 | 302506.69  | 5806616.11  | 11.340                              | 8.990                                    | 4.521                        | 6.819                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW181              | GW7/14         | Gauge Only             | 31/07/2023 | 302550.25  | 5806523.31  | 11.171                              | 6.671                                    | 4.400                        | 6.771                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW182              | GW7/15         | Gauge and Sample       | 31/07/2023 | 302599.22  | 5806504.882 | 12.036                              | 7.990                                    | 5.903                        | 6.133                            | 7.000                      | Low                   | Clear, no odour or sheen   | 15.8      | 1.43      | 4897       | 7.57 | 39.3             | 239.3                | 3183       |
| E2    | MW185              | GW7/5          | Gauge and Sample       | 31/07/2023 | 302485.67  | 5806605.94  | 11.191                              | 8.270                                    | 4.721                        | 6.470                            | 7.270                      | Low                   | Clear, no odour or sheen   | 17.6      | 2.37      | 860        | 9.00 | -30.6            | 169.4                | 559        |
| E2    | MW186              | GW7/6          | Gauge Only             | 31/07/2023 | 302539.81  | 5806634.15  | 10.733                              | 7.310                                    | 4.187                        | 6.546                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW188              | GW7/8          | Gauge Only             | 31/07/2023 | 302550.341 | 5806564.5   | 11.223                              | 6.740                                    | 4.706                        | 6.517                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW190              | GW81/1         | Gauge Only             | 31/07/2023 | 302323.49  | 5806422.04  | 11.210                              | 9.945                                    | 4.580                        | 6.630                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW192              | GW81/3         | Gauge and Sample       | 31/07/2023 | 302333.74  | 5806445.4   | 11.559                              | 8.880                                    | 5.012                        | 6.547                            | 7.880                      | Low                   | Slightly brown, no odour or sheen  | 16.2      | 2.83      | 1187       | 8.84 | -21.4            | 178.6                | 772        |
| E2    | MW194              | GW81/5         | Gauge Only             | 31/07/2023 | 302314.831 | 5806425.287 | 11.406                              | NM                                       | NM                           | -                                | -                          | -                     | Unable to access well due to material stored on the top.                     | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW196              | GW81/7         | Gauge Only             | 31/07/2023 | 302353.52  | 5806429.82  | 12.504                              | 20.620                                   | 5.992                        | 6.512                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW197              | GW88A/1        | Gauge Only             | 31/07/2023 | 302235.18  | 5806416.92  | 11.280                              | 13.770                                   | 4.299                        | 6.981                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW200              | GW90/2         | Gauge and Sample       | 31/07/2023 | 302606.689 | 5806611.544 | 10.733                              | 7.030                                    | 4.630                        | 6.103                            | 6.030                      | High                  | Cloudy brown, no odour or sheen  | 17.2      | 2.35      | 4080       | 7.57 | -9.9             | 190.1                | 2652       |
| E2    | MW201              | GW90/3         | Gauge Only             | 31/07/2023 | 302638.494 | 5806549.1   | 11.338                              | 6.870                                    | 4.916                        | 6.422                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW203              | GW1            | Gauge Only             | 31/07/2023 | 302521.58  | 5807834.65  | 20.470                              | 28.780                                   | 7.490                        | 12.980                           | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW206              | GWAM/3         | Gauge Only             | 31/07/2023 | 302762.491 | 5806902.884 | 12.542                              | 9.000                                    | 5.000                        | 7.542                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW207              | GWAM/4         | Gauge and Sample       | 31/07/2023 | 302791.079 | 5806828.498 | 11.681                              | 7.650                                    | 4.789                        | 6.892                            | 6.650                      | Low                   | Cloudy, no odour or sheen  | 17.5      | 3.76      | 1243       | 7.45 | -11.3            | 188.7                | 808        |
| E2    | MW208              | GWAM/5         | Gauge and Sample       | 31/07/2023 | 302802.254 | 5806982.549 | 12.910                              | 9.450                                    | 5.726                        | 7.184                            | 8.450                      | Low                   | Clear, no odour or sheen   | 17.1      | 4.31      | 1074       | 8.73 | -36.3            | 163.7                | 698        |
| E2    | MW209              | GWAM/6         | Gauge Only             | 31/07/2023 | 302854.587 | 5806823.054 | 12.683                              | 8.650                                    | 6.553                        | 6.130                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW211              | GW8/2          | Gauge and Sample       | 31/07/2023 | 302667.386 | 5807389.359 | 14.370                              | 13.410                                   | 4.279                        | 10.091                           | 12.410                     | Low                   | Clear, no odour or sheen   | 16.3      | 3.44      | 8374       | 7.40 | 2.2              | 202.2                | 5443       |
| E2    | MW212              | GW1            | Gauge Only             | 31/07/2023 | 302982.97  | 5807571.64  | 12.290                              | 5.810                                    | 2.929                        | 9.361                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW213              | GW1            | Gauge Only             | 31/07/2023 | 302763.13  | 5807546.98  | 13.920                              | 15.800                                   | 3.741                        | 10.179                           | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW214              | GW1            | Gauge Only             | 31/07/2023 | 302712.22  | 5807692.79  | 18.060                              | 26.010                                   | 6.235                        | 11.825                           | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW215              | GW1            | Gauge Only             | 8/1/2023   | 303243.36  | 5807736.72  | 10.540                              | 8.760                                    | 1.227                        | 9.313                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW217              | GWGA01         | Gauge and Sample       | 31/07/2023 | 302703.17  | 5807616.61  | 17.236                              | 11.800                                   | 6.010                        | 11.226                           | 10.800                     | Low                   | Clear, no odour or sheen   | 16.0      | 3.18      | 5455       | 7.48 | -24.3            | 175.7                | 3546       |
| E2    | MW218              | GW1            | Gauge Only             | 8/1/2023   | 303437.8   | 5807888.13  | 10.550                              | 8.170                                    | 1.511                        | 9.039                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW222              | GW1            | Gauge Only             | 8/1/2023   | 303668.03  | 5808239.88  | 12.550                              | 8.300                                    | 4.124                        | 8.426                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW225              | GWSTP/1        | Gauge Only             | 31/07/2023 | 302719.2   | 5806623.43  | 10.580                              | 13.470                                   | 4.508                        | 6.072                            | -                          | -                     | -  | -         | -         | -          | -    | -                | -                    | -          |
| E2    | MW228              | -              | Gauge and Sample       | 31/07/2023 | 303335.69  | 5806188.31  | 5.710                               | 6.900                                    | 2.207                        | 3.503                            | 5.900                      | High                  | Brown, no odour or sheen   | 12.1      | 4.00      | 4283       | 7.12 | 157.1            | 357.1                | 2784       |
| E2    | MW229              | -              | Gauge and Sample       | 31/07/2023 | 303554.24  | 5806529.27  | 7.660                               | 9.700                                    | 3.815                        | 3.845                            | 8.700                      | Low                   | Clear, no odour or sheen   | 16.7      | 2.77      | 6475       | 7.32 | 77.8             | 277.8                | 4209       |
| E2    | MW230              | -              | Gauge Only             | 31/07/2023 | 303871.55  | 5806570.81  | 8.400                               | -  | -                            | -                                | -                          | -                     | Unable to locate, appears to be buried in an area of a newly developed park. | -         | -         | -          | -    | -                | -                    | -          |

Notes:  
 NM: Not Measured  
 -: Data not available  
 TDS = EC\*0.65  
 Corrected Redox = Field Redox + correction factor of 200 mV, in accordance with manufacturer guidance.

| Event | Location ID | Easting | Northing  | Date       | Sample Depth (m) | Water Body Depth (m) | Flow (m/s) | DO (mg/L) | EC (µS/cm) | pH   | Field Redox (mV) | Corrected Redox (Eh) | Temp (°C) | TDS (mg/L) | Observations  |
|-------|-------------|---------|-----------|------------|------------------|----------------------|------------|-----------|------------|------|------------------|----------------------|-----------|------------|---|
| E2    | SW005       | 303563  | 5807650   | 8/2/2023   | 0.05             | -                    | Stagnant   | 4.78      | 1576       | 7.08 | -22.0            | 178.0                | 13.2      | 1024       | Dark brown, high turbidity, no odour or sheen                                 |
| E2    | SW006       | 303594  | 5808237   | 8/1/2023   | 0.10             | 0.50                 | Low        | 6.72      | 1244       | 7.66 | -22.0            | 178.0                | 12.3      | 809        | Clear, slightly brown, foam on top of water                                   |
| E2    | SW008       | 302320  | 5807920   | 8/2/2023   | -                | -                    | -          | -         | -          | -    | -                | -                    | -         | -          | Dry   |
| E2    | SW012       | 303443  | 5805592   | 8/2/2023   | 0.15             | 0.30                 | Low        | 9.45      | 4564       | 7.85 | 74.5             | 274.5                | 13.0      | 2967       | Clear to slight brown, low turbidity, no odour or sheen, foam on top of water |
| E2    | SW013       | 303155  | 5805844   | 8/2/2023   | 0.30             | 0.60                 | Low        | 8.31      | 4545       | 7.61 | 105.4            | 305.4                | 13.1      | 2954       | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW015       | 303861  | 5807563   | 8/3/2023   | 0.10             | 0.30                 | Medium     | 7.15      | 2605       | 7.45 | 74.4             | 274.4                | 12.8      | 1693       | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW020       | 302904  | 5805750   | 8/2/2023   | 0.30             | 0.50                 | Low        | 8.36      | 4250       | 7.60 | 95.5             | 295.5                | 11.1      | 2763       | Clear to slight brown, low turbidity, no odour or sheen                       |
| E2    | SW024       | 303647  | 5804612   | 8/3/2023   | 0.20             | 0.40                 | Low        | 9.66      | 4252       | 7.90 | 75.8             | 275.8                | 11.1      | 2764       | Brown, low turbidity, no odour or sheen                                       |
| E2    | SW027       | 301132  | 5806803   | 8/2/2023   | 0.30             | 0.60                 | Stagnant   | 2.55      | 168        | 6.35 | 90.3             | 290.3                | 13.8      | 109        | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW030       | 301166  | 5806698   | 8/2/2023   | 0.30             | 1.00                 | Stagnant   | 5.90      | 407        | 6.92 | 78.9             | 278.9                | 13.8      | 265        | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW034       | 302803  | 5806795   | 8/2/2023   | 0.05             | 0.10                 | Stagnant   | 6.44      | 380        | 7.82 | 76.4             | 276.4                | 13.6      | 247        | Clear, low turbidity, no odour or sheen, minor algae                          |
| E2    | SW035       | 301084  | 5806339   | -          | -                | -                    | -          | -         | -          | -    | -                | -                    | -         | -          | Not sampled due to access restrictions  |
| E2    | SW036       | 301285  | 5806440   | -          | -                | -                    | -          | -         | -          | -    | -                | -                    | -         | -          | Not sampled due to access restrictions  |
| E2    | SW037       | 301638  | 5806186   | -          | -                | -                    | -          | -         | -          | -    | -                | -                    | -         | -          | Not sampled due to access restrictions  |
| E2    | SW038       | 301348  | 5806121   | -          | -                | -                    | -          | -         | -          | -    | -                | -                    | -         | -          | Not sampled due to access restrictions  |
| E2    | SW039       | 301175  | 5806159   | -          | -                | -                    | -          | -         | -          | -    | -                | -                    | -         | -          | Not sampled due to access restrictions  |
| E2    | SW041       | 300674  | 5805437   | 8/2/2023   | 0.20             | 0.50                 | High       | 8.72      | 5062       | 8.02 | -18.1            | 181.9                | 14.1      | 3290       | Clear, low turbidity, no odour or sheen, foam on top of water                 |
| E2    | SW042       | 301587  | 5805948   | 8/3/2023   | -                | -                    | -          | -         | -          | -    | -                | -                    | -         | -          | Dry   |
| E2    | SW042       | 301587  | 5805948   | 10/17/2023 | 0.10             | 0.20                 | Stagnant   | 6.89      | 311        | 7.41 | 8.2              | 208.2                | 13.3      | 202        | Cloudy brown, no odour or sheen   |
| E2    | SW043       | 302258  | 5806401   | 8/2/2023   | 0.05             | 0.20                 | Stagnant   | 13.21     | 275        | 9.97 | -37.0            | 163.0                | 15.7      | 179        | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW045       | 300494  | 5807011   | 8/2/2023   | 0.05             | 0.20                 | Stagnant   | 6.19      | 162        | 6.88 | -14.8            | 185.2                | 13.2      | 105        | Black cloudy, low turbidity, no odour or sheen                                |
| E2    | SW049       | 304293  | 5804432.1 | 8/3/2023   | 0.30             | 0.60                 | Low        | 10.28     | 4298       | 8.05 | 75.8             | 275.8                | 14.7      | 2794       | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW052       | 302743  | 5803091   | 8/3/2023   | 0.30             | 1.00                 | Stagnant   | 9.06      | 8729       | 8.53 | -6.8             | 193.2                | 13.0      | 5674       | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW073       | 302547  | 5805707   | 8/2/2023   | 0.30             | 0.50                 | Low        | 7.63      | 4162       | 7.48 | 103.3            | 303.3                | 11.2      | 2705       | Brown, low turbidity, no odour or sheen                                       |
| E2    | SW078       | 304786  | 5803490   | 8/3/2023   | 0.30             | 0.50                 | Low        | 8.88      | 4856       | 8.14 | 65.4             | 265.4                | 12.0      | 3156       | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW083       | 300919  | 5806203   | -          | -                | -                    | -          | -         | -          | -    | -                | -                    | -         | -          | Not sampled due to access restrictions  |
| E2    | SW085       | 303520  | 5802808   | 8/3/2023   | 0.30             | 1.00                 | High       | 6.09      | 13852      | 8.42 | -10.1            | 189.9                | 12.9      | 9004       | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW086       | 303903  | 5803116   | 8/3/2023   | 0.20             | 0.50                 | Medium     | 6.00      | 14803      | 8.41 | -6.1             | 193.9                | 13.0      | 9622       | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW087       | 304289  | 5803068   | 8/3/2023   | 0.20             | 0.40                 | Stagnant   | 7.85      | 14464      | 8.49 | 4.7              | 204.7                | 12.5      | 9402       | Clear, low turbidity, no odour or sheen                                       |
| E2    | SW088       | 304726  | 5802685   | 8/3/2023   | 0.20             | 0.50                 | Stagnant   | 8.28      | 13943      | 8.51 | 8.6              | 208.6                | 11.8      | 9063       | Clear, low turbidity, no odour or sheen                                       |

Notes:

NM: Not Measured

-: Data not available

TDS = EC\*0.65

Corrected Redox = Field Redox + correction factor of 200 mV, in accordance with manufacturer guidance.

# Equipment Calibration Form

## YSI ProPlus



**Enqip #:** 20111  
**Company:** Stantec Australia Pty Ltd  
**Consultant:** [REDACTED]  
**PO #:** 19008  
**Certificate #:** 29606

### INSTRUMENT IDENTIFICATION

**Model Number:** 6050000  
**Serial Number:** 16E100252  
**Instrument Type:** YSI ProPlus

### INSPECTION RECORD

**Batteries Checked:** PASS      **Date & Time:** PASS  
**Electrodes Cleaned/Checked:** PASS      **Temperature:** PASS

### CALIBRATION DETAILS

| Sensor         | Cal Solution          | Value              | Reading    |
|----------------|-----------------------|--------------------|------------|
| pH             | Buffer 4.00           | 4.00 pH            | 4.00 pH    |
|                | Buffer 7.00           | 7.00 pH            | 7.00 pH    |
| Redox          | Standard ORP          | 241.0 mV @ 15.0 °C | 241.0 mV   |
| O <sub>2</sub> | Zero Dissolved Oxygen | 0.0 %              | 0.0 %      |
|                | Air                   | 100.0 %            | 100.0 %    |
| Conductivity   | Standard Conductivity | 2.76 mS/cm         | 2.76 mS/cm |

**Calibration Successful:** YES

**Calibrated By:** [REDACTED]

**Test Date:** 27/07/2023



116 Thistlethwaite St, South Melbourne 3205  
P 1300 218 987

E info@enqip.com.au | W www.enqip.com.au

## Equipment Calibration Report

### YSI ProPlus Water Quality Meter

This YSI ProPlus Water Quality Meter has been performance checked as per the manufacturer's guidelines<sup>1</sup>.

Unit Type: YSI ProPlus / YSI ProPlus Quattro

Serial Number: 220164337

The unit has been checked for and comprises of the following items:


| Item                  | Present                             | Damaged or Absent        |
|-----------------------|-------------------------------------|--------------------------|
| Carry case            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Attached sensors (x4) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Spare Batteries       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Connector Cable       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Instruction Manual    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |


The following tests and operational checks have been conducted on the unit:

| Item                                    | Test Completed                      | Test Passed                         |
|---|-------------------------------------|-------------------------------------|
| WQM unit electrodes cleaned and checked | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Operations check (screen functions)     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Temperature check                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Calibration:

| Sensor         | Cal. Solution                           | Value             | Reading           |
|----------------|---|-------------------|-------------------|
| pH             | pH: Buffer Solution 4.00                | 4.00              | 4.00              |
| pH             | pH: Buffer Solution 7.00                | 7.00              | 7.06              |
| pH             | pH: Buffer Solution 10.00               | 10.00             | 10.15             |
| Redox          | Standard ORP solution                   | 256.5 mV @ 12.5°C | 256.5 mV @ 12.5°C |
| O <sub>2</sub> | Ambient Air for 100% Dissolved Oxygen   | 100%              | 100%              |
| O <sub>2</sub> | Sodium Sulphate for 0% Dissolved Oxygen | 0%                | 0%                |
| Conductivity   | Standard Conductivity Solution          | 2.76 µS/cm @ 25°C | 2.76 µS/cm @ 25°C |

Calibrated by: 

Signed: 

Date: 01/08/2023

<sup>1</sup> YSI Professional Plus – Calibration Tips; Rev A, December 2010.



## Equipment Bump Test Record

### YSI ProPlus Water Quality Meter

Project Management  
YSI Bump Test Record

| Date of Bump Test | Job Number | Unit No. Brand/Model                               | Ambient Air Oxygen Calibration |     | Zero % Oxygen Solution Calibration |     | Standard Concentrations (Y if present)   |                          | Ambient Temperature (°C) | Bump Test Readings  |                          | Bump Test Readings within ±5%? |                          | Comment | Test by (Name) | (Signature) |
|-------------------|------------|--|--------------------------------|-----|------------------------------------|-----|--|--------------------------|--------------------------|---|--------------------------|--------------------------------|--------------------------|---------|----------------|-------------|
|                   |            |  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | Y/N<br>Y/N<br>Y/N<br>Y/N |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C     | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       | Y/N<br>Y/N<br>Y/N<br>Y/N |         |                |             |
| 2/09/23           | 2015001    | YSI Pro Plus (Carano YSI serial number: 19H102165) | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: 2.22 μS/cm @ 25 °C<br>ORP: 228 mV @ 25 °C          | Y/N<br>Y/N<br>Y/N<br>Y/N | 6.6                      | pH 4.00: 7.85<br>pH 7.00: 7.00<br>pH 10.00:<br>EC: 2.8 μS/cm @ 25 °C<br>ORP: 241 mV @ 5 °C      | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |
| 3/9/23            | 3000 024   | YSI  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: 2.36 μS/cm @ 25 °C<br>ORP: 221 mV @ 25 °C          | Y/N<br>Y/N<br>Y/N<br>Y/N | 10.3                     | pH 4.00: 3.94<br>pH 7.00: 6.90 25<br>pH 10.00:<br>EC: 2.22 μS/cm @ 10 °C<br>ORP: 241 mV @ 10 °C | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | Y/N<br>Y/N<br>Y/N<br>Y/N |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C     | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | Y/N<br>Y/N<br>Y/N<br>Y/N |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C     | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | Y/N<br>Y/N<br>Y/N<br>Y/N |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C     | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | Y/N<br>Y/N<br>Y/N<br>Y/N |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C     | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | Y/N<br>Y/N<br>Y/N<br>Y/N |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C     | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | Y/N<br>Y/N<br>Y/N<br>Y/N |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C     | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N | 0% Calibration                     | Y/N | pH 4.00<br>pH 7.00<br>pH 10.00<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C | Y/N<br>Y/N<br>Y/N<br>Y/N |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C     | Y/N<br>Y/N<br>Y/N<br>Y/N | Y/N<br>Y/N<br>Y/N<br>Y/N       |                          |         |                |             |



## Equipment Bump Test Record

### YSI ProPlus Water Quality Meter

Project Management  
YSI Bump Test Record

| Date of Bump Test | Job Number | Unit No. Brand/Model                               | Ambient Air Oxygen Calibration |  | Zero % Oxygen Solution Calibration | Standard Concentrations (Y if present)                     | Ambient Temperature (°C) | Bump Test Readings  | Bump Test Readings within ±5%?  |  |       | Comment | Test by (Name) | (Signature) |
|-------------------|------------|--|--------------------------------|--|------------------------------------|--|--------------------------|---|---|--|-------|---------|----------------|-------------|
|                   |            |  | 100% Saturation?               | Y/N  |                                    |  |                          |   | Y/N   | Y/N  | Y/N   |         |                |             |
| 02/08             |            | YSI Pro Plus (Cardno YSI serial number: 19H102165) | 100% Saturation?               | <input checked="" type="radio"/> Y <input type="radio"/> N | 0% Calibration                     | <input checked="" type="radio"/> Y <input type="radio"/> N | 5                        | pH 4.00: 4.20<br>pH 7.00: 7.15<br>pH 10.00: 10.29<br>EC: 2.76 μS/cm @ 25 °C<br>ORP: 358.4 mV @ 6.5 °C | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N | Recal |         |                |             |
| 03/08             |            |  | 100% Saturation?               | <input checked="" type="radio"/> Y <input type="radio"/> N | 0% Calibration                     | <input checked="" type="radio"/> Y <input type="radio"/> N | 11                       | pH 4.00: 3.97<br>pH 7.00: 6.84<br>pH 10.00: 9.53<br>EC: 2.76 μS/cm @ 25 °C<br>ORP: 245 mV @ 10 °C     | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N<br><input checked="" type="radio"/> Y <input type="radio"/> N | Recal |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N  | 0% Calibration                     | Y/N  |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C           | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N   |       |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N  | 0% Calibration                     | Y/N  |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C           | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N   |       |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N  | 0% Calibration                     | Y/N  |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C           | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N   |       |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N  | 0% Calibration                     | Y/N  |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C           | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N   |       |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N  | 0% Calibration                     | Y/N  |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C           | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N   |       |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N  | 0% Calibration                     | Y/N  |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C           | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N   |       |         |                |             |
|                   |            |  | 100% Saturation?               | Y/N  | 0% Calibration                     | Y/N  |                          | pH 4.00:<br>pH 7.00:<br>pH 10.00:<br>EC: _____ μS/cm @ _____ °C<br>ORP: _____ mV @ _____ °C           | pH 4.00: (± pH 0.2)<br>pH 7.00: (± pH 0.2)<br>pH 10.00: (± pH 0.2)<br>EC: (± 150 μS/cm)<br>ORP: (± 10mV)<br>Temp: (± 2°C) | <input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N<br><input type="radio"/> Y <input type="radio"/> N   |       |         |                |             |



APPENDIX

# E

DATA QUALITY REVIEW



now



## Data Quality Review RAAF Williams (Laverton)

This Appendix reviews the Quality Assurance (QA) and Quality Control (QC) documentation. Quality assurance encompasses the actions, procedures, checks and decisions undertaken to ensure sample integrity and representativeness, and the reliability and accuracy of analysis results. The QA documentation should also include an indication of the Data Quality Objectives sought in relation to each significant action, test or process involved in the Assessment.

QC activities measure the effectiveness of the QA procedures by undertaking testing, and then comparing results to previously established objectives. QC work will include the internal laboratory testing as well as results of QC samples submitted such as trip blanks and duplicates. The quality of the information and/or data is deemed satisfactory when the QC results demonstrate that agreed objectives have been met.

Cardno undertook a review of its QA/QC as part of the data validation exercise. The findings are summarised below.

| QA/QC Aspects  | Evidence and Evaluation  |
|--|--|
| <b>QA Documentation</b>  |  |
| Sampling and Analysis Quality Plan and Data Quality Objectives | <p>Cardno now Stantec was engaged by Department of Defence (the client) to carry out the PFAS Ongoing Monitoring Plan (OMP) at RAAF Williams (Laverton) (the site).</p> <p>The monitoring event was completed from 31 July 2023 until 3 August 2023 and is in general accordance with the scope and limitations presented in Cardno's Sampling and Analysis Quality Plan (SAQP) of 25 August 2023 (Our Ref: 20230825_OMP002_SAQP_Rev3).</p> <p>The assessment was carried out in general compliance with the following:</p> <ul style="list-style-type: none"> <li>▪ Australian Standard (2005), AS 4482-2005 Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 - Non-volatile and semi-volatile compounds (withdrawn as pending revision, referred to for 'state of knowledge').</li> <li>▪ Department of Defence (2021), Contamination Management Manual (DCMM), Annex L – Data Management, August 2019, Amended June 2021.</li> <li>▪ Department of Defence (2019), Pollution Prevention Management Manual – Annex 1L: Pollution Prevention Guidance - Routine Water Quality Monitoring.</li> <li>▪ Department of Defence, Department of Energy (2018), Quality System Manual Schedule B15 USEPA DQO Process.</li> <li>▪ EPA Victoria (2009), Industrial Waste Resources Guidelines, Sampling and Analysis of Waters, Wastewaters, Soils and Wastes, Publication 701.</li> <li>▪ Heads of Environmental Protection Authority's Australia and New Zealand (HEPA; 2020), PFAS National Environmental Management Plan (NEMP) Version 2.0, January 2020.</li> <li>▪ National Environment Protection Council (NEPC; 2013), National Environmental Protection (Assessment of Site Contamination) Measure (as amended 2013) (ASC NEPM).</li> <li>▪ National Health and Medical Research Council (NHMRC; 2019), Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water, August 2019.</li> <li>▪ USEPA (2006), Guidance for the Data Quality Objectives Process (EPA QA/G-4).</li> </ul> <p>A quality control program was implemented during the investigation and the quality assurance procedures used have been reiterated in the report.</p> <p>The investigation was carried out in accordance with the Safe Work method Statements (SWMS) and Health, Safety and Environmental Management Plan</p> |

| QA/QC Aspects                               | Evidence and Evaluation   |
|---|---|
|   | <p>(HSEMP) for the site. Detailed work plans were also provided for each phase of investigation and are outlined in the SAQP.</p> <p>The Data Quality Objectives were expressed in terms of the purpose of the assessment and the relevant assessment criteria.</p>   |
| Data Validation Report                      | <p>This review constitutes a data validation review. This was supported by an ESdat generated "QAQC Checker" excel report, summarised in Table B3, Appendix B.</p>  |
| <b>Data Representativeness</b>              |   |
| Holding Times                               | <p>Groundwater and surface water sample analysis holding times were in conformance with EPA Publication IWRG701 2009 'Sampling and Analysis of Waters, Wastewaters, Soils and Wastes'.</p>  |
| Background Samples                          | <p>No background samples were collected as part of this assessment.</p>   |
| Equipment Decontamination                   | <p>The decontamination methodology conducted during this investigation is documented in the body of the report, and was in general conformance with the SAQP.</p> <p>Reusable equipment (e.g. interface meter, water quality meter, telescopic pole) was rinsed with Liquinox® and deionised water after use between each location.</p>   |
| Laboratory Re-analysis                      | <p>Laboratory re-analysis was requested to confirm first-time detections, new exceedances and/or order of magnitude increases at the following location: SW005. The reanalysis results were found to be consistent with the original results.</p>   |
| <b>Data Precision and Accuracy</b>          |   |
| QC Testing – Blind Replicates (Primary Lab) | <p style="text-align: center;"><b>Groundwater</b></p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30%</li> <li>▪ Groundwater Samples Analysed: 35</li> <li>▪ Blind Replicate Samples Analysed: 4</li> <li>▪ Blind Replicate Analyte Pairs: 116 (excludes 'analytes' that are a summation of other analytes)</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 7</li> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 6.03%</li> </ul> <p>The RPD exceedances observed were generally minor and likely attributed to the low concentration of analyte pairs. This is not considered to impact the results of the investigation. The RPD results are presented in Table B3, Appendix B.</p> <p style="text-align: center;"><b>Surface water</b></p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30 %</li> <li>▪ Surface water Samples Analysed: 21</li> <li>▪ Blind Replicate Samples Analysed: 4</li> <li>▪ Blind Replicate Analyte Pairs: 87 (excludes 'analytes' that are a summation of other analytes)</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 1</li> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 1.15%</li> </ul> <p>The RPD exceedance observed was minor and likely attributed to the low concentration of analyte pairs. This is not considered to impact the results of the investigation. The RPD results are presented in Table B3, Appendix B.</p> |
| QC Testing – Field Splits (Secondary Lab)   | <p style="text-align: center;"><b>Groundwater</b></p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30%</li> <li>▪ Groundwater Samples Analysed: 35</li> <li>▪ Blind Replicate Samples Analysed: 4</li> <li>▪ Blind Replicate Analyte Pairs: 116 (excludes 'analytes' that are a summation of other analytes)</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 7</li> </ul>  |

| QA/QC Aspects                          | Evidence and Evaluation   |
|--|---|
|  | <ul style="list-style-type: none"> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 6.03%</li> </ul> <p>The RPD exceedances observed were generally minor and likely attributed to the low concentration of analyte pairs. This is not considered to impact the results of the investigation. The RPD results are presented in Table B3, Appendix B.</p> <p style="text-align: center;"><b>Surface water</b></p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30 %</li> <li>▪ Surface water Samples Analysed: 21</li> <li>▪ Blind Replicate Samples Analysed: 4</li> <li>▪ Blind Replicate Analyte Pairs: 87 (excludes 'analytes' that are a summation of other analytes)</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 3</li> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 3.45%</li> </ul> <p>The RPD exceedances observed were generally minor and likely attributed to the low concentration of analyte pairs. This is not considered to impact the results of the investigation. The RPD results are presented in Table B3, Appendix B.</p> |
| Trip Blanks                            | Two trip blanks were collected, and laboratory tested for PFAS. All analytes were reported below the limit of reporting (LOR). Trip blank results are presented in Table B4, Appendix B.  |
| Laboratory Internal QC                 | <p>Evidence of the laboratories internal QC testing is present and complete. Both ALS (the primary laboratory) and Eurofins-mgt performed internal QC with adequate testing and mostly satisfactory results for matrix spikes, method blanks and laboratory duplicates. Exceptions include following laboratory reports EM2134152, EM2314153 and EM2314161:</p> <ul style="list-style-type: none"> <li>▪ EM2314161 did not determine a matrix spike recovery as the recovery was less than the lower data quality objective for select PFAS compounds.</li> <li>▪ EM2314161 did not determine matrix spike recovery as background level greater than or equal to 4x spike level.</li> <li>▪ EM2314152, EM2314153 and EM2314161, quality control sample frequency: less than the specification outlined in NEPM 2013 B3 and ALS QC Standard.</li> </ul> <p>These exceptions are not considered to impact the results of the investigation.</p>   |
| Laboratory Method Detection Limit      | Laboratory reports indicate the method detection limits were generally lower than the respective assessment criteria.   |
| NATA endorsement of laboratory reports | Laboratory reports were stamped with the NATA endorsement stamp and signature. Laboratory reports are included in Appendix C of this report.  |
| Calibration of Field Equipment         | All field equipment used was calibrated by the equipment supplier. Additionally, bump tests were performed of the water quality meter throughout the monitoring event. Certificates and bump test records are included in Appendix D of this report.  |
| Decontamination and Equipment Blanks   | <p>Three rinsate blanks were analysed during the investigation.</p> <p>Rinsate blank samples were tested for PFAS which all reported concentrations below the laboratory LOR. Results are shown in Table B4, Appendix B.</p>  |
| <b>Data Comparability</b>              |   |
| Full Review of Data                    | <p>Once all results have been received, Cardno undertake a full review of the data for any anomalies in consideration of historical data at each location (where available), such as first-time detections or new exceedances being reported at locations which have not had detections or exceedances previously. Where potentially anomalous data is identified or suspected, further confirmatory measures were undertaken such as re-extraction and reanalysis of the sample by the laboratory and/or additional data quality review.</p> <p>One sample was requested for re-extraction and reanalysis as listed above.</p>   |

| QA/QC Aspects                | Evidence and Evaluation  |
|------------------------------|--|
|                              | The instrument runs were reviewed by the laboratory and the results reconfirmed by reanalysis from a second sample bottle. The original results for all samples were confirmed.  |
| Standard Procedures          | Fieldwork procedures are detailed in the report and followed the work methods outlined in the SAQP.  |
| Qualified Personnel          | Staff involved in managing and reviewing the project and those involved in fieldwork are qualified personnel.  |
| Volatile Losses              | Volatile losses are not applicable to PFAS.  |
| Sample Integrity             | Field Chain of Custody forms are included in Appendix C of this report and demonstrate sample integrity.   |
| <b>Data Completeness</b>     |  |
| Completeness of Test Program | The scope of work undertaken was generally consistent with that set out in the SAQP. Variations to the SAQP are detailed in the Factual Report.  |
| Validity of Data Set         | The data quality review indicates no significant systematic errors in the data collection process for surface water and groundwater and therefore, the data set used as the basis for the assessment is considered valid and complete. |

APPENDIX

F

INFORMATION ABOUT ENVIRONMENTAL REPORTS



now



# About Site Environmental Assessment Reports

## 1. Introduction

This document explains the Environmental Site Assessment (ESA) process and the context that applies to the use of Environmental Reports issued by Cardno now Stantec.

## 2. What is an ESA?

Environmental Site Assessments (ESA) are undertaken for a range of purposes, specific to the brief issued by the client in each case. The scope may include one or a combination of any of the following:

- A factual report of the condition of a portion of the site or one aspect of an entire site.
- Assessment of the contamination levels in soil to be removed from a site – a waste classification assessment.
- Validation of the success of remediation of a site or a portion of a site.
- Provision of a professional opinion about the suitability of a site for one or more uses, in terms of its contamination status.

The scope of any ESA needs to be defined at the outset.

An ESA is not an Environmental Audit. Such audits are undertaken in accordance with the provisions of regulations enacted in various states of Australia, and are referred to as Site Audits in some jurisdictions. Statutory audits provide certification by EPA accredited auditors that a site is suitable for one or more uses. An ESA may provide similar advice but cannot be used in place of an audit if the latter is required by regulation in any instance. However in some circumstances and jurisdictions an ESA is sufficient to provide “environmental sign-off” of a site.

An ESA may be undertaken for due diligence purposes, to establish whether the site has been impacted to the extent that some beneficial uses of the site may be precluded. Due diligence audits in many cases may be completed as non-statutory Audits, although in some jurisdictions they can also be statutory audits, if defined as such at the outset.

## 3. The ESA Process

The Client generally initiates the ESA process by specifying a brief which identifies the specific objectives of the assessment. If not, it is the consultants' duty to so specify the ESA

In the case of an ESA to provide an opinion about the suitability of the site for use, it would be conducted in accordance with NEPM (Site Assessment). Such ESA would not commence until a thorough site history assessment (Phase 1 Assessment: to identify the potential for significant contamination at a site) is conducted. However, where the history is unclear, a broad screening of chemical parameters can be used to test environmental media. This normally includes a broad range of organic and inorganic compounds and elements, often referred to as an Environmental Screen.

(In the case of an ESA for a purpose other than to provide an opinion about the suitability of the site for use, it is not always necessary to undertake a Phase 1 assessment.)

The ESA requires sampling of soil at representative locations across the site. A NATA accredited laboratory performs the analysis of soil. It is impractical for all of the soil to be assessed. The ESA is often based on a statistical method of grid or random sampling, augmented by targeted sampling at locations known or suspected to be contaminated. Guidance on sampling strategy and density is provided in Australian Standard AS4482.1–2005. However, some considerable degree of judgement is still required in the application of any sampling and testing strategy. For example the blanket application of the “hot spot” method presented in this standard is often inappropriate given its limitations.

The field program also investigates the likelihood of contamination below the site surface. Field investigations must sample and test fill as well as the natural soils. If contamination is found then it is common for further work to be undertaken to characterise, to the extent practical, its vertical and horizontal extent. However, where fill is encountered and testing shows it to be uncontaminated, it must be realised that the heterogeneous nature of the material might mean that not all pockets of contaminated material can be detected using normal sampling regimes.

EPA guidelines for auditors, that may be relevant for an ESA, indicate the need in all cases to consider the potential for groundwater contamination in any site. This does not mean all sites need to be drilled to sample groundwater, but it is most often the case. Most hydrogeological settings and groundwater conditions are complex and vary in space and time. The condition of groundwater is investigated to identify if any beneficial use or environmental value of groundwater is precluded due to contamination.

As previously stated for soil, all groundwater at the site cannot be tested. The environmental investigations are conducted in accordance with industry standards and guidelines (e.g. EPA Vic Pub 668). This provides a level of confidence that a sufficiently comprehensive assessment of the groundwater at the site is achieved.

Where an investigation shows that groundwater is polluted, consideration should be given to assessing the risks and the need for and practicality of any clean up.

#### 4. Environmental Assessment Report

The ESA Report details the findings of the ESA. It provides summary information on the site definition, the reasons for the assessment and other relevant facts. It reviews the scope and quality of the site investigations, laboratory testing and data analyses undertaken. These reports also present a review of the contamination status of the site, the need for any further clean up, and an opinion on the suitability of the site for a range of beneficial uses and land uses such as “residential – low density”, “commercial” etc, as appropriate.

However, as noted above, some ESA have a narrow scope such as for classification of waste soil for removal from site, and do not make conclusions on suitability of site for use.

The ESA Report generally includes copies of other documents and reports, necessary to support the assessment findings, presented as appendices. These can contain more detailed information than the body of the ESA Report. Care should be taken to also read the appended documents and the ESA report in full.

Cardno now Stantec generally issues reports in electronic form (e-Report) on CD ROM. ESA Reports are issued in this format as Adobe Acrobat™ PDF files. However, a paper copy of the executive summary of the ESA Report is generally issued to the client, and others as required by the brief or by regulation.

#### 5. Limitations of Environmental Assessment Report

The ESA Report is prepared in a manner that can be easily read by a lay person with a legitimate interest in the contamination status of the site, such as the site owner or occupier, EPA and Local Planning Authority. The ESA report is not intended for use by other parties or for other purposes. Anyone who uses the assessment report for purposes other than specified in the report, does so at their own risk.

The site should only be used for one or more of the beneficial uses and land uses identified in the ESA as suitable.

The conditions and qualifications may apply to the suitability of the site for use, and it is the responsibility of the Client to be cognizant of and accept these in accepting the report. Cardno now Stantec are only responsible for the issuing of the ESA report but accepts no liability for the costs incurred in the implementation of ESA findings.

The ESA provides a “snapshot” of the site conditions at the time of the site investigation. Consequently, the report may not be valid at a later time if there has been any change to the contamination status of the site in that time. Verification of the status of the site may be required in cases where a significant time has elapsed, or site conditions have changed since the assessment and audit.

The ESA is necessarily limited by constraints such as time, cost and available information; although normal professional practice at the time has been applied with all due care to prepare the report. A necessary requirement of this process is the horizontal and vertical interpolation of data from discrete locations. However, site conditions are generally not homogenous and some discrepancies will occur between the actual and predicted results at locations not directly sampled. There is a risk that contamination may occur at the site and not be identified by a competent investigation and assessment. The approach adopted in sampling (a combination of statistically based grid and judgmental sampling) seeks to reduce, but cannot eliminate, this risk.

Where unexpected occurrences of contamination arise, subsequent to the issue of the ESA Report, Cardno now Stantec should be permitted to make an interpretation of these facts in relation to the ESA Report findings. Consequently, the Client should inform Cardno now Stantec and seek their opinion. Cardno now Stantec accepts no liability for costs incurred due to such unexpected



occurrences, given the inherent uncertainties in the assessment process.

Cardno now Stantec uses information provided by other parties as the basis for the ESA, and reliance on this information is at the discretion of Cardno now Stantec. However, however Cardno now Stantec cannot guarantee any of the facts, findings or conclusions presented by other parties. Cardno now Stantec will not be liable for the use of information, provided by others that is subsequently found to be intentionally misleading.

The ESA Report is not and does not purport to be anything other than a contaminated land ESA. It is not a geotechnical report and bore logs reproduced are for interpretation of the likely distribution of contamination. They are not intended for geotechnical interpretations and may not be adequate for this purpose.

The ESA Report is not intended to be a comprehensive analysis of the presence and associated risk of asbestos in buildings and services. Where asbestos in buildings and services is known or likely, the report may only caution that an appropriately qualified person be engaged to undertake demolition to avoid contamination of the site.

**Cardno now Stantec**

19 August 2022

APPENDIX

# E

PFAS OMP SAMPLING AND  
ANALYSIS QUALITY PLAN (SAQP)



now



# PFAS OMP Sampling and Analysis Quality Plan (SAQP)

RAAF Williams (Laverton)

DEF19008



Prepared for  
Department of Defence

25 August 2023

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now

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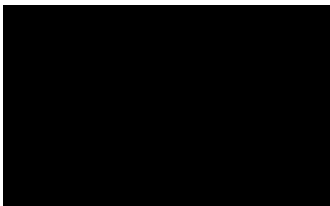
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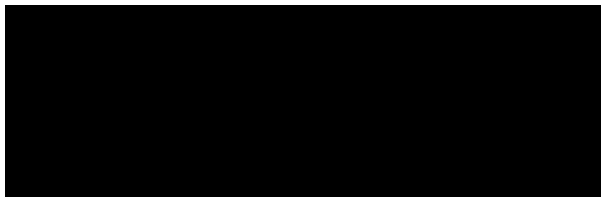
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Senior Environmental Scientist



Principal Environmental Geoscientist

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Our report is based on information made available by the client. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Cardno now Stantec is both complete and accurate. Whilst, to the best of our knowledge, the information contained in this report is accurate at the date of issue, changes may occur to the site conditions, the site context or the applicable planning framework. This report should not be used after any such changes without consulting the provider of the report or a suitably qualified person.

## Document History

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# 1 Introduction

---

Cardno have been engaged by the Australian Department of Defence ('Defence' or 'the Client') to prepare a Sampling and Analysis Quality Plan (SAQP) as part of the Ongoing Monitoring Plan (OMP), the purpose of which is to monitor trends in the extent and concentrations of per- and poly-fluoroalkyl substances (PFAS) impacts identified on and around Royal Australian Air Force (RAAF) Williams (Laverton), Victoria (Figure 1, Appendix A).

The OMP SAQP applies to RAAF Williams (Laverton), and surrounding areas that, together with the Base, make up the "Management Area" (MA), as shown in Figure 1, Appendix A. For the purposes of this report:

- > The "On-Site Management and Monitoring Area" is defined as the current extents of RAAF Williams (Laverton) ('the Site' or 'the Base').
- > The "Off-Site Monitoring Area" includes private properties and public land to the west (former Base extents, now referred to as Williams Landing), south-west and south of the Site, and waterbodies and adjacent land situated hydraulically downgradient of the Site, including Skeleton Creek and Sanctuary Lakes.
- > The "Management Area" encompasses the "On-Site Management and Monitoring Area" and the "Off-Site Monitoring Area".

The Site is located on Commonwealth Land and is regulated under Commonwealth environmental legislation. The OMP outlines the rationale and scope for the monitoring of the concentrations and extent of PFAS in groundwater and surface water at and around the Site. Findings from the monitoring over the two-year initial implementation period will be used to assess any changes to the nature and extent of PFAS impact where there is an identified potentially elevated risk to a receptor or a potential future risk to a receptor.

## 1.1 Scope & Objectives

The objective of the SAQP is to present the specific monitoring locations, sampling methodologies and quality control / quality assurance measures for the monitoring of the concentrations and extent of PFAS in groundwater and surface water at and around the Site. These findings will inform risk management decisions by Defence and the Victorian Government to protect human health and the environment.

The objectives of the ongoing monitoring program as set out in the OMP are to:

- > Implement a program of surface water and groundwater monitoring to continue to assess changes in risk from PFAS within the environment, focusing on where there is an identified potential risk requiring management under the PFAS Management Area Plan (PMAP); and
- > Assess the seasonal effects of PFAS concentrations in surface water and groundwater, including during or immediately following extreme or high rainfall events.

The scope of the monitoring specified in the OMP includes:

- > Evaluate any changes in risk from PFAS in groundwater and surface water associated with Site sources of PFAS derived from aqueous film forming foam (AFFF).
- > Measure the seasonal effects of PFAS concentrations in surface water and groundwater, including during or immediately following extreme or high rainfall events.
- > Monitor the migration of PFAS in groundwater and surface water from the Site.
- > Evaluate the nature and extent of PFAS impact in surface water and groundwater.
- > Provide confirmation of the current understanding of risk.
- > Provide supporting data for assessment of management actions, where relevant.



## 1.2 Previous Reports

The following key reports prepared in relation to RAAF Williams (Laverton) PFAS Investigation have been used as a basis to develop the OMP:

- > Golder Associates (2017), *Preliminary Site Investigation for PFAS RAAF Base Williams Laverton VIC (0927)*, September 2017.
- > Aurecon Australasia Pty Ltd (2022c) *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams Laverton, Off-Site Ecological Risk Assessment*, May 2022.
- > Aurecon Australasia Pty Ltd (2020), *Investigation of per-and poly-fluoroalkyl substances at RAAF Williams Laverton, Detailed Site Investigation, prepared for Department of Defence*, November 2020.
- > Environmental Risk Sciences Pty Ltd (2022), *Human Health Risk Assessment: Skeleton Creek and Sanctuary Lakes*, Prepared for Aurecon Australasia Pty Ltd and the Australian Government Department of Defence, May 2022.
- > Environmental Risk Sciences Pty Ltd (2022), *Human Health Risk Assessment for PFAS from consumption of home grown produce at Williams Landing, VIC*, Prepared for Aurecon Australasia Pty Ltd and the Australian Government Department of Defence, March 2022.
- > Aurecon Australasia Pty Ltd (2022a). *Ongoing Management Plan at RAAF Williams (Laverton)-*, Prepared for the Department of Defence, August 2022; and
- > Aurecon Australasia Pty Ltd (2022b). *PFAS Management Area Plan at RAAF Williams (Laverton)-*, Prepared for the Department of Defence, August 2022.

## 1.3 Responsible Parties

Responsible parties and responsibilities associated with the implementation of the OMP are detailed in Table 1-1.

Table 1-1 Responsible Parties

| Role   | Responsibilities   |
|--|--|
| Department of Defence – PFAS Investigation and Management Branch                           | <ul style="list-style-type: none"> <li>▪ Implement the OMP.</li> <li>▪ Engage suitably qualified environmental consultants/contractors to carry out the works specified in the OMP.</li> </ul>   |
| RAAF Williams (Laverton) – Base Support Manager and Environment and Sustainability Manager | <ul style="list-style-type: none"> <li>▪ Review and approve all necessary permits required for implementation of the works outlined in the OMP.</li> </ul>   |
| Environmental Consultant   | <ul style="list-style-type: none"> <li>▪ Obtain necessary permits from RAAF Base Williams (Laverton) to implement the works outlined in the OMP.</li> <li>▪ Liaise with State regulators (e.g. Department of Biodiversity, Conservation and Attractions) to arrange sampling of off-Site waterways, as required.</li> <li>▪ Undertake the monitoring activities outlined in this SAQP.</li> <li>▪ Produce a factual report that summarises the data and findings of each monitoring event and is consistent with the requirements of this SAQP.</li> <li>▪ Produce an annual interpretive report (AIR) including recommendations for any potential changes in the location and frequency of sampling which may be incorporated in the revision of the OMP.</li> <li>▪ Upload analytical data from each monitoring event to the relevant Defence ESdat database.</li> </ul> |
| Department of Defence (lead) and Environmental Consultant                                  | <ul style="list-style-type: none"> <li>▪ Liaise with off-Site private property owners to arrange private property access to conduct sampling if necessary.</li> </ul>  |
| PMAP Lead Consultant   | <ul style="list-style-type: none"> <li>▪ Implement PMAP recommendations and undertake PMAP review.</li> <li>▪ Undertake OMP review.</li> </ul>   |

## 1.4 Relevant Guidelines

This SAQP has been prepared in general accordance with the current 'industry standards' for a site investigation for the purpose, objectives and scope identified in this report. These standards are set out in:

- > Australian Standard AS 4482.1-2005, Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 - Non-volatile and semi-volatile compounds (withdrawn as pending revision, referred to for 'state of knowledge').
- > Department of Defence (2019), Pollution Prevention Management Manual – Annex 1L: Pollution Prevention Guidance – Routine Water Quality Monitoring.
- > Department of Defence (2021b), Contamination Management Manual (DCMM), Annex L – Data Management, August 2019, Amended June 2021.
- > Department of Defence, Department of Energy (2018), Quality System Manual Schedule B15 USEPA DQO Process.
- > Environment Protection Authority (EPA) Victoria (2022), Groundwater Sampling Guidelines, Publication 669.1, February 2022.
- > EPA Victoria (2009), Sampling and Analysis of Waters, Wastewaters, Soils and Wastes, Publication 701, June 2009.
- > EPA Victoria (2020), Interim Position Statement on PFAS, Publication 1669.4, October 2020.
- > Heads of Environmental Protection Authority's Australia and New Zealand (HEPA) (2020), PFAS National Environmental Management Plan (NEMP) Version 2.0, January 2020.
- > National Environment Protection Council (NEPC) (2013), National Environmental Protection (Assessment of Site Contamination) Measure (1999, as amended 2013) (ASC NEPM).
- > National Health and Medical Research Council (NHMRC) (2019), Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water, August 2019.
- > United States Environment Protection Authority (USEPA) (2006), Guidance for the Data Quality Objectives Process (EPA QA/G-4).
- > USEPA (2002), Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8).

## 1.5 Standards of Assessment and Limitations

This SAQP has been prepared in general accordance with the current industry standards for an assessment of this type for the purpose, objectives and scope identified in this report.

The scope presented in this SAQP report are derived only from available desk-based information and site inspection undertaken. This SAQP is not any of the following:

- > An Environmental Audit Report as defined under the Environment Protection Act 2017.
- > A Geotechnical Assessment.
- > A Detailed Site Investigation (DSI).
- > A Detailed Hydrogeological Assessment.
- > A Remediation Action Plan (RAP) report.
- > A Site Management Plan (SMP).

## 2 Site Setting

### 2.1 Site Description

RAAF Williams (Laverton) is located 18 km west-southwest of the Melbourne central business district (CBD) and occupies an area of approximately 150 ha. The original extent of the Base (including the airfield) when it was established by the RAAF in 1921 was approximately 430 ha.

Following closure of the airfield in 1996, the western half of the former Base comprising the former airfield was sold and subsequently redeveloped as a mixed use (primarily residential) precinct. The portion of land that was sold is known as Williams Landing; the majority of which has now been primarily developed for residential use. The main activities at the Site overtime have included flight training, flight programs, general aircraft testing, air surveys and air shows. In recent times, the Site is used for following:

- > Maintenance and administration buildings.
- > Non-flight related training facilities and storage.
- > Temporary accommodation.
- > Childcare Centre.
- > Sporting Facilities.

#### 2.1.1 Management Area Description

The OMP includes all groundwater and surface water monitoring locations on the Site and public land to the west (former Base extents), south-west and south of the Site, and waterbodies and adjacent land situated hydraulically downgradient of the Site, including Skeleton Creek and Sanctuary Lakes, which are collectively referred to as the MA. The MA boundaries are presented on Figure 1, Appendix A.

#### 2.1.2 Site Definition and Planning

A detailed description of the Site is provided in the OMP report (Aurecon, 2022a). The Site location is presented on Figure 1, Appendix A.

Key Site identification details are presented in Table 2-1.

Table 2-1 Site Identification Details

| Details                                 | Description   |
|---|---|
| <b>Site Address</b>                     | 17 Sir Richard Williams Ave, Laverton VIC 3028              |
| <b>Land Description</b>                 | RAAF Williams (Laverton)                                    |
| <b>Owner</b>                            | Department of Defence                                       |
| <b>Title Details</b>                    | Up to 9 individual Certificates of Title exist for the Site |
| <b>Planning Zone / Land use</b>         | Commonwealth Land (CA)                                      |
| <b>Local Government Authority (LGA)</b> | Wyndham City Council  |
| <i>Source: Aurecon 2022</i>             |   |

#### 2.1.3 Surrounding Land Uses and Zoning

Land surrounding the Site is currently used for the purposes detailed in Table 2-2. It is envisaged that future land uses in the MA will remain relatively consistent.

Table 2-2 Surrounding Land Uses

| Direction    | Land Use   |
|--------------|--|
| <b>North</b> | Land directly the north of the Site includes Laurie Emmins Reserve, a public open space comprising a picnic area, recreational lake and scout hall. Doherty's Drain and Laverton Creek flow into the northern portion of the Site. |
| <b>East</b>  | The land immediately to the east of the Site contains private residential properties in the suburb of Laverton. Laverton Secondary School is located approximately 100 m east of   |

| Direction | Land Use  |
|-----------|---|
|           | the Site. There is a mix of land used for residential, educational land uses and public open spaces.  |
| West      | The land south of the Site includes a railway corridor, train station (Aircraft station) and light industrial and commercial area. There are some private residential properties in the suburbs of Laverton and Altona Meadows. Skeleton Creek is located a further 1 km to the south, which eventually flows through the Cheetham wetlands (4 km south-east) and discharges to Port Phillip Bay. |
| South     | The former RAAF Williams airfield was located west of the Site and has been developed into the Williams Landing development area, which includes residential properties, sporting fields, wetlands, and a commercial precinct in the Town Centre.   |

Source: Google Maps, 2019

### 2.1.4 Environmental Setting

Key details defining the Site as presented in the OMP (Aurecon, 2022a) are summarised in Table 2-3. Associated locations are presented in Figure 1 and Figure 2, Appendix A.

Table 2-3 Key Site Details

| Setting                            | Description  |
|------------------------------------|--|
| <b>Regional Meteorology</b>        | Climate data for the Site available from 1991-2020 from the nearest station on-Site, at Laverton RAAF (#087031) (Bureau of Meteorology (BOM) 2020) <sup>1</sup> . Mean annual rainfall is 480.2 mm. March is on average the driest month with an average rainfall of 31.3 mm, while November is on average the wettest month with average rainfall of 53.6 mm. Mean annual maximum temperature is 20.1°C with a range of 14.1°C in July to 28.0°C in January, while the annual mean minimum temperature recorded at the Site is 9.7°C with a range of 5.6°C in July to 14.7°C in February (BOM 2020).  |
| <b>Topography &amp; Bathymetry</b> | RAAF Williams (Laverton) ranges in elevation between 8 and 20 m Australian Height Datum (AHD) with a gentle slope to the south-east, in the direction of the coastline (Port Phillip Bay). This general slope to the south-east is reflective of the regional topography and topography of the MA. A mound occurs in the north-west of Site that is partially constructed of fill material. The Site is also cut by Laverton Creek and Doherty's Drain, which run across the north and north-eastern corner of the property. This topography significantly influences the hydrology and hydrogeology of the Site, where both surface water and groundwater flow in either a south-easterly direction towards Skeleton Creek and then to Port Phillip Bay, or in a north and north-easterly direction towards Laverton Creek and Doherty's Drain.   |
| <b>Geology</b>                     | The Site is predominately underlain by the Quaternary-Tertiary Newer Volcanics. The Newer Volcanics formation consists of olivine basalt and olivine labradorite basalt, and is light to dark grey in colour, coarsely vesicular in places, and can include minor interbedded silty sand and baked soil. Surface geology comprises predominantly volcanic rocks assigned to the Pliocene-Pleistocene Newer Volcanics and localised deposits of recent alluvium along drainages. This upper basalt varies in thickness and weathering profile across the Site, generally from 2 to 8 m thick, and is typically dry at shallower intervals. Across the Site, the upper basaltic unit is underlain by a red/brown baked clay palaeosol of varying thickness, which is typically soft and moist to wet.  |
| <b>Acid Sulphate Soil</b>          | A review of the Acid Sulphate Soils (ASS) risk mapping, available on the Australian Soil Resources Information System (ASRIS) atlas online database <sup>2</sup> indicates that the area encompassing the Site is classified as having an extremely low probability of encountering ASS on land, however there is a risk of encountering ASS in the wetlands soil (close to the main water bodies).  |
| <b>Hydrology</b>                   | RAAF Williams (Laverton) is located within the Werribee River basin, which covers an area of 1,991 km <sup>2</sup> , including much of the western area of Melbourne. Groundwater within RAAF Williams (Laverton) is part of the Port Phillip and Westernport Catchment Management Authority (CMA) Groundwater Flow System, which ultimately flows towards Port Phillip Bay. The Site comprises of the following principal drainage catchments (i.e. Monitoring Area Drainage) <ul style="list-style-type: none"> <li>▪ <b>Doherty's Drain and Laverton Creek:</b> These are two main surface water drainage lines cross the northern half of the Site. Originating below ground in the north-western corner of the Site, Doherty's drain flows from west to east across the property connecting the three dams via concrete lined drains and underground pipes (under roadways) prior to merging with Laverton Creek.</li> </ul> <p>Laverton Creek is a permanent watercourse originating in the northeast and flows south to confluence with the Doherty's Drain in the eastern portion of the Site. Laverton Creek is</p> |

| Setting  | Description  |
|--|--|
|  | <p>considered a generally gaining surface water system with a high potential for groundwater interaction (Aurecon 2022a).</p> <ul style="list-style-type: none"> <li>▪ <b>Skeleton Creek:</b> Originating near the Western Freeway (Truganina) passing through Hoppers Crossing, Seabrook and Point Cook before discharging to Port Phillip Bay via the Cheetham Wetlands. Skeleton Creek is another highly modified surface water body that receives stormwater from urban areas passing approximately 800 m south of the Site.</li> <li>▪ <b>Cheetham Wetlands/Port Phillip Bay:</b> Point Cook/Cheetham (Cheetham Wetlands), which is located approximately 4 km south-east of RAAF Williams (Laverton) where Skeleton Creek and Laverton Creek discharge into.</li> <li>▪ <b>Laverton RAAF Swamp:</b> A larger natural wetland (Laverton RAAF Swamp) within a nature conservation area in the south-west corner of the former Base extents, which receives surface water from the Ashcroft Wetland and Forsyth Road Drain.</li> <li>▪ <b>Sanctuary Lakes:</b> Sanctuary Lakes is located 4 kms downstream of the Site. It is connected hydraulically by an intermittent pumped connection from the Skeleton Creek Tidal Pond and is considered as the Site's drainage catchment.</li> </ul>  |
| <p><b>Hydrogeology</b></p>   | <p>The hydrogeology of the Site consists of fractured basalt, separated by clay layers and lies within the Newer Volcanics Aquifer.</p> <ul style="list-style-type: none"> <li>▪ <b>Groundwater Occurrence/Quality-</b> The Site consists of the following multi-layered aquifer system comprising of the following: <ul style="list-style-type: none"> <li>– Defined by the presence of two basalt aquifers separated by an intervening clay aquitard. The upper basalt is generally unconfined whilst the lower basalt aquifer is semi-confined to confined.</li> <li>– Thickness of upper basalt aquifer is between 2.7 m and 13.7m. The total thickness of the lower basalt aquifer was 12 m in the north of the Site.</li> <li>– According to the Visualising Victoria's Groundwater (VVG)<sup>3</sup> website, the groundwater salinity at and near the Site is classified at a Segment C level of salinity (3,101 to 5,400 mg/L Total Dissolved Solids (TDS))</li> </ul> </li> <li>▪ <b>Depth to groundwater</b> for on-Site wells averaged 5.1 metres below ground level (mBGL), whilst average groundwater depths for off-Site wells downgradient of the Site and former Base extent (Williams Landing) were 4.2 mBGL (reducing towards Skeleton Creek) and 5.6 mBGL, respectively.</li> <li>▪ <b>Groundwater Flow Direction</b> – Groundwater flow underlying the Site occurs horizontally in a general southerly to south-easterly direction discharges into Skeleton Creek and ultimately discharges from the Newer Volcanic Aquifer (NVA) predominantly into Port Phillip Bay, where the NVA extends to adjacent wetlands (such as Cheetham Wetlands).</li> <li>▪ <b>Groundwater Use</b> – a bore search identified 93 registered bores within three kilometres of the Site boundaries. Groundwater use within the surrounding area (1 km around the Site) was found to be minimal, primarily owing to the presence of reticulated mains potable water supply. One active bore water user was identified south of the Laverton RAAF Swamp, where groundwater is used for the flood irrigation of the front lawn of the commercial / industrial property. No other groundwater users were identified from investigation into registered bores and a review of recent aerial imagery (Aurecon, 2020). It is noted that groundwater may be being used in the area by users with unregistered bores. <ul style="list-style-type: none"> <li>– 38 Observation or groundwater investigation wells.</li> <li>– 5 stock/domestic wells</li> <li>– 22 destroyed or decommissioned wells</li> <li>– 24 unknown use or miscellaneous wells.</li> </ul> </li> <li>▪ <b>Receiving Surface Water Body</b> – Ultimate discharge from the NVA occurs predominantly into Port Phillip Bay, where the NVA extends to adjacent wetlands (such as Cheetham Wetlands) and offshore.</li> </ul> |
| <p><b>Environmental Sensitive Areas</b></p>  | <p>The sensitive receptors to the area include (but are not limited to):</p> <ul style="list-style-type: none"> <li>▪ Aquatic biota of Skeleton Creek</li> <li>▪ Laverton RAAF Swamp</li> <li>▪ Cheetham Wetlands</li> <li>▪ Sanctuary Lakes</li> <li>▪ Aquatic flora, fish and crustaceans</li> <li>▪ Higher order predators (migratory birds)</li> </ul>   |
| <p>1. Bureau of Meteorology <a href="http://www.bom.gov.au/climate/averages/tables/cw_086361.shtml">http://www.bom.gov.au/climate/averages/tables/cw_086361.shtml</a>, last accessed in December 2022.</p> |  |

| Setting | Description   |
|---------|---|
|         | 2. Australian Soil Resource Information System <a href="http://www.asris.csiro.au/mapping/viewer.htm">http://www.asris.csiro.au/mapping/viewer.htm</a> , last accessed in December 2022.                                |
|         | 3. Visualising Victoria's Groundwater <a href="https://www.vvq.org.au/vvq_map.php?agreement=Agree+and+Continue#">https://www.vvq.org.au/vvq_map.php?agreement=Agree+and+Continue#</a> , last accessed in December 2022. |

## 2.2 Conceptual Site Model

The Conceptual Site Model (CSM) for the Site is provided in Appendix C of the PMAP (Aurecon 2022b) to identify major/minor sources, migration pathways, exposure routes and receptors (current and future).

The CSM was based on numerous PFAS investigations, including:

- > Aurecon Australasia Pty Ltd (2020). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)- Detailed Site Investigation*, Prepared for the Department of Defence, November 2020.
- > Aurecon Australasia Pty Ltd (2021). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)- Detailed Site Investigation Addendum*, Prepared for the Department of Defence, December 2021.
- > Aurecon Australasia Pty Ltd (2022c). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)-Off-site ecological risk assessment*, Prepared for the Department of Defence, May 2022.
- > Environmental Risk Sciences Pty Ltd (2022a), *Human Health Risk Assessment for PFAS from consumption of home grown produce at Williams Landing, VIC*, March 2022.
- > Environmental Risk Sciences Pty Ltd (2022b), *Human Health Risk Assessment Skeleton Creek and Sanctuary Lakes, VIC*, May 2022.
- > Golder Associates (2017), *Preliminary Site Investigation for PFAS RAF Base Williams Laverton VIC 0927*, September 2017.

### 2.2.1 Source Areas

As the geographical extents of some of these sources overlap and the off-Site areas of historical AFFF use have since been dispersed by development activities and are no longer discrete source areas, the 11 identified potential PFAS source areas were consolidated into the following four source areas (Aurecon, 2022a). The source areas are presented on Figure 2, Appendix A:

- > CSR\_VIC\_000168 Source Area 1 (SA 1) – Former Wet Testing Area (extends partially off-Site).
- > CSR\_VIC\_000489 Source Area 2 (SA 2) – Western Finger Area (extends partially off-Site)
  - Air Movements
  - Fire Truck Maintenance Shed (Building 123)
  - Former Chemical Storage (Buildings 81 and 155)
  - Electroplating Areas (Building 7)
  - Former Electrical Workshop (Former Building 88).
- > CSR\_VIC\_000488 Source Area 3 (SA 3) – Former Secondary Fire Training Area
  - Former fire training area
  - Historical landfill / dumping sites.
- > CSR\_VIC\_000487 Source Area 4 (SA 4) – Former GEMS Compound Surround (now off-Site and extends partially on-Site).

The highest on-Site concentrations of PFAS in soils, sediment, surface water and groundwater were generally identified within and adjacent to source areas. This indicated that while the use of AFFF within each of these areas has ceased, the soils and sediment within the source areas are continuing to act as a source of PFAS identified within the on-Site and off-Site Skeleton Creek and Laverton Creek catchments.

Other areas of AFFF use in the former Base extents have been dispersed by development activities and are not considered as discrete source areas in the PMAP (Aurecon, 2022b).

There are other potential upgradient off-Site source areas outside the MA including potential storage, use and spills of AFFF including but not limited to;

- > The Laverton Industrial Estate to the north and east of Site, which have potentially impacted Kayes Drain and subsequently Laverton Creek; and
- > The Hoppers Crossing industrial area to the north and west of Site, which have potential contributed to impacts observed in Skeleton Creek.

These potential background contributions are based on desktop review and background PFAS that were measured in surface waters upstream from the Site.

### 2.2.2 Migration Pathway

Horizontal migration through groundwater and stormwater runoff from the Site and former Base are potential significant migration pathway with PFAS detection from stormwater outlet in the Western Finger and the overland drain connection between Laverton RAAF Swamp and Skeleton Creek. PFAS is also likely migrating to the south and discharging to Skeleton Creek, contributing to the PFAS mass flux in Skeleton Creek.

Migration Pathways include:

- > Leaching of PFAS from impacted soils into groundwater and surface water.
- > Overland transport of particulate and dissolved PFAS into stormwater drains.
- > Stormwater captured and discharged through stormwater outlets.
- > Overland transport of particulate and dissolved PFAS to Doherty's Drain, Laverton Creek and Skeleton Creek.
- > Uptake of PFAS in surface water by biota.
- > Vertical migration of dissolved PFAS to shallow groundwater aquifer.
- > Transport of PFAS via groundwater to surface water (Skeleton Creek).
- > Transport of particulate and dissolved PFAS via surface waters of Skeleton Creek and Laverton Creek to downstream water bodies, including Cheatham Wetlands, Sanctuary Lakes and Port Phillip Bay.

Exposure routes include:

- > Direct contact with surface water and/or groundwater for human and ecological receptor.
- > Incidental ingestion of surface water/or groundwater for human and ecological receptor.
- > Ingestion of water (currently no known consumers and considered unlikely to occur) (human receptors only).
- > Ingestion of biota (e.g. fish / eels) (human receptors only).
- > Bioaccumulation – uptake from soil by biota (ecological receptors only).
- > Bioaccumulation – uptake from sediment and water by biota (ecological receptors only).
- > Bioaccumulation – ingestion of terrestrial and aquatic biota by higher order terrestrial and migratory and non-migratory avian fauna (ecological receptors only).

Further details are included in the Appendix C of the PMAP (Aurecon 2022b).

### 2.2.3 Receptors

Potential current and future receptors on Site include Defence personnel, contractors, Base childcare attendees, golf course users and Site visitors, while off-Site, potential current and future receptors include residents at neighbouring properties, consumers of home grown produce, terrestrial and aquatic ecosystems, recreational users of surface water (including recreational fishers), as well as land users and environments down gradient of groundwater (Aurecon, 2022a).

### 3 Data Quality Objectives

This SAQP has been developed based on a set of Data Quality Objectives (DQO) in reference to the DQO presented in the OMP (Aurecon, 2022a), and based on guidance presented in the US Environmental Protection Agency (USEPA, 2006), and NEPM 2013 (Schedule B2). The DQO process comprises the following seven steps:

- > Step 1: State the problem.
- > Step 2: Identify the Decision/goal of the study.
- > Step 3: Identify the Information Inputs.
- > Step 4: Define the Boundaries of the Study.
- > Step 5: Develop the Analytical Approach/decision rules.
- > Step 6: Specify Performance or Acceptance Criteria.
- > Step 7: Develop the Plan for Obtaining the Data.

The DQOs are detailed in Table 3-1.

Table 3-1 Data Quality Objectives

| Data Quality Step                                      | Description   |
|--|---|
| <b>Step 1: State the Problem</b>                       | <p>Previous investigations identified PFAS associated with the use, storage and disposal of AFFF at the Site in the groundwater, surface water, impacted soil, sediment and biota within the MA at concentrations exceeding the relevant assessment levels. Ongoing surface water and groundwater monitoring is required to be undertaken within the Monitoring Area to assess the spatial and temporal variation in PFAS concentrations and to provide supporting data for assessment of management actions in reducing the mass of PFAS in surface water and groundwater.</p>   |
| <b>Step 2: Identify the Decision/goal of the study</b> | <p>The SAQP is to provide further data to assess the following principal study question:</p> <ul style="list-style-type: none"> <li>▪ <i>Do the analytical results and field observations allow for the interpretation of the spatial and temporal variation in PFAS concentrations in the Management Area and do these trends warrant a re-evaluation of management options in the PMAP?</i></li> </ul> <p>The alternative actions of the principal study question are:</p> <ul style="list-style-type: none"> <li>▪ The analytical results and field observations allow for interpretation of the spatial and temporal variation in PFAS concentrations and warrant a re-evaluation of management options.</li> <li>▪ The analytical results and field observations allow for interpretation of the spatial and temporal variation in PFAS concentrations, and do not warrant a re-evaluation of management options.</li> </ul>   |
| <b>Step 3: Identify the Information Inputs</b>         | <p>The following inputs are required to resolve the principal study questions outlined in Step 2:</p> <ul style="list-style-type: none"> <li>▪ Objectives and scope of works of this OMP.</li> <li>▪ Findings from the DSI (Aurecon, 2020), Addendum to the DSI (Aurecon, 2021), Off-Site Environmental Risk Assessments (ERA) (Aurecon, 2022c), Human Health Risk Assessment (HHRA) for Williams Landing (EnRiskS, 2022).</li> <li>▪ CSM, including potential sources, pathways and receptors.</li> <li>▪ Potential contaminants of concern (PFAS).</li> <li>▪ Field methods, such as sampling, sample storage and preservation, laboratory methods, quality control (QC) and quality assurance (QA).</li> <li>▪ Media to be sampled (including surface water and groundwater), and location of samples (on/off-Site, up/down-hydraulic gradient, up/down-stream).</li> <li>▪ Adopted assessment criteria will be from the PFAS National Environmental Management Plan V2.0 (Heads of EPA 2020 or as amended) where available.</li> <li>▪ Field data (including water quality parameters and visual/olfactory observations) and results from the laboratory analysis.</li> </ul> |



| Data Quality Step  | Description   |
|--|---|
|  | <ul style="list-style-type: none"> <li>Data from other sources (ESdat) such as data collected for the design or assessment of remediation activities.</li> </ul>  |
| <p><b>Step 4: Define the Boundaries of the Study</b></p>             | <p>The following are to be undertaken in line with the implementation of the OMP.</p> <ul style="list-style-type: none"> <li>The SAQP comprises sampling locations at RAAF Williams (Laverton) and surrounds to assess variation in PFAS concentrations over time and provide supporting data for assessment of any potential management actions.</li> <li>The sampling will be conducted bi-annually and will include surface water and groundwater, including locations both on and off-Site, up/down-hydraulic gradient and up and downstream, as well as surface water flow estimation.</li> <li>The vertical boundary of the investigation will be the depth of the shallow groundwater aquifer.</li> <li>The temporal boundary is from the date of publishing this OMP for an initial two-year timeframe.</li> <li>The sampling unit for surface water and groundwater will be assessed and collected in a HDPE bottle. All sampling containers will be laboratory supplied.</li> </ul>   |
| <p><b>Step 5: Develop the Analytical Approach/Decision Rules</b></p> | <p>The decision rules can be defined as:</p> <ul style="list-style-type: none"> <li>All samples analysed for the full PFAS suite and suitability of data assessed to ensure the laboratory QA/QC is within acceptable ranges.</li> <li>Comparison of PFAS concentrations in surface water and groundwater against the drinking water and recreational water health-based guideline values and the ecological guideline values.</li> <li>Comparison of PFAS concentrations in surface water and groundwater against previous results to determine any temporal or spatial trends or variations in concentrations.</li> </ul> <p>Assessment of any trends (such as temporal or seasonal trends) may inform decision making to consider whether further monitoring may be reduced or continued following the initial implementation period.</p> <p>The decision on the acceptance of analytical data should be made on the basis of data quality indicators (DQIs) as detailed below</p>   |
| <p><b>Step 6: Specify Performance or Acceptance Criteria</b></p>     | <p>Acceptance limits on field and laboratory data collected for this investigation will be in accordance with NEPM 2013 and NEMP (2020).</p> <p>The acceptable limits on decision errors to be applied include the investigation and the manner of addressing possible decision errors have been developed based on the DQIs of precision, accuracy, representativeness, comparability and completeness are presented below.</p> <p>The potential for major decision errors will be minimised by completing a robust QA/QC program and by completing an investigation that has an appropriate sampling and analytical density and sufficient flow measurement accuracy for the purposes of the investigation.</p> <p>To determine potential adverse impacts on sensitive receptors and the appropriate response measures, the baseline condition has been established as, 'concentrations are above the Tier 1 screening criteria or Limit of Reporting (LOR) (whichever is relevant)', while the alternative condition is, 'the concentrations are below the Tier 1 screening criteria or LOR (whichever is relevant)'.</p> <p>The statistical hypotheses are then:</p> <ul style="list-style-type: none"> <li>H<sub>0</sub>: the maximum contaminant concentration in all media is at or above the Tier 1 screening criteria or LOR (whichever is relevant)</li> <li>H<sub>1</sub>: the maximum contaminant concentration in all media is below the Tier 1 screening criteria or LOR (whichever is relevant)</li> </ul> <p>The acceptable limits on the likelihood of making decision errors are:</p> <ul style="list-style-type: none"> <li>Type I error: <math>\alpha \leq 0.05</math> (represents the probability of determining that the media is uncontaminated, when it is in fact contaminated)</li> <li>Type II error: <math>\beta \leq 0.2</math> (represents the probability of determining that the media is contaminated, when it is in fact uncontaminated)</li> </ul> |
| <p><b>Step 7: Develop the Plan for Obtaining the Data</b></p>        | <p>The SAQP is developed in accordance with the OMP and the relevant guidelines through a targeted approach to produce a resource-effective design that targets known and potential sources, pathways and receptors at RAAF Williams (Laverton).</p>  |

| Data Quality Step | Description   |
|-------------------|---|
|                   | <p>Samples will be analysed by a National Association of Testing Authorities (NATA) accredited laboratory within approved sample holding times. The recommended holding time for PFAS is 14 days.</p> <p>Surface water flow measurements are to be obtained using the Float Method over a length of at least 10 m, where possible. Alternatively, publicly available flow data from Melbourne Water (or equivalent) will be obtained.</p> |

An assessment of the Data Quality Indicators (DQIs) relating to both field and laboratory procedures will be undertaken with appropriate documentation provided for each environmental element or media assessed. The DQIs adopted for the OMP (Aurecon, 2022a) are summarised in Table 3-2.

Table 3-2 Data Quality Indicators

| Field  | Laboratory   | Acceptability Limits  |
|--|--|---|
| <b>Completeness</b>  |  |   |
| <ul style="list-style-type: none"> <li>▪ Appropriate sampling procedures to be used for each individual media, as outlined in NEMP (2020) and the <i>Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)</i> (Department of Environment Regulation 2017)</li> <li>▪ Suitably qualified field team to undertake investigation, led by suitably qualified person</li> <li>▪ Surface water flow measurements completed at all sample locations, where practicable</li> <li>▪ Correct documentation to be completed (e.g., chain of custodies)</li> </ul> | <ul style="list-style-type: none"> <li>▪ All required samples analysed in accordance with the SAQP, where practicable</li> <li>▪ Appropriate laboratory methods to be employed in accordance with the US Department of Defence (2017) Quality Systems Manual (QSM) Version 5.1</li> <li>▪ Appropriate LORs</li> <li>▪ Sample documentation correct (e.g. chain of custodies, sample receipt notification etc).</li> <li>▪ Sample holding times in compliance (14 days for PFAS)</li> </ul> | <p>All required data must be obtained for critical samples and chemicals of concern to meet the objectives</p> <p>Acceptability limits as per NEPM 2013 and Department of Defence QSM 5.3</p> |
| <b>Comparability</b>   |  |   |
| <ul style="list-style-type: none"> <li>▪ Correct sample and flow rate estimation procedures used at each location</li> <li>▪ Experienced field team, led by the suitably qualified person</li> <li>▪ Same type (medium, volume and sampling technique) of samples collected in accordance with laboratory requirements and NEMP (2020).</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Same analytical methods used between laboratories (US Department of Defence QSM 5.3)</li> <li>▪ Appropriate LORs</li> <li>▪ Primary samples submitted to the same NATA accredited laboratory</li> <li>▪ Analytical data is presented in the same unit</li> </ul>  | <p>As per NEPM 2013, NEMP (2020), Department of Defence QSM 5.3.</p>  |
| <b>Representativeness</b>  |  |   |
| <ul style="list-style-type: none"> <li>▪ Appropriate media sampled</li> <li>▪ All media identified (i.e. surface water, groundwater) sampled</li> <li>▪ Samples collected must be homogenous and appropriately collected, handled, stored and preserved to reflect the field conditions</li> <li>▪ Same method of obtaining flow data is used each time (unless previous rounds indicate the method used was not adequate</li> </ul>   | <ul style="list-style-type: none"> <li>▪ All required samples analysed in accordance with the SAQP</li> </ul>  | <p>As per NEPM 2013, NEMP (2020) and Department of Defence QSM 5.3</p>  |
| <b>Precision</b>   |  |   |

| Field   | Laboratory   | Acceptability Limits   |
|---|--|--|
| <ul style="list-style-type: none"> <li>▪ Correct sample and flow rate estimation procedures used at each location</li> <li>▪ Collection of appropriate QA/QC samples, including rinsate samples, as per NEPM 2013 and the NEMP (2020)</li> </ul>  | <p>Analysis of:</p> <ul style="list-style-type: none"> <li>▪ Intra- and inter-laboratory sample (1 per 10 samples collected, per sample type)</li> <li>▪ Laboratory duplicate samples</li> </ul>   | <p>Relative Percentage Difference (RPD) of 30-50%<br/>RPDs may exceed this range where:</p> <ul style="list-style-type: none"> <li>▪ Results are &lt;10x the LOR, or</li> <li>▪ Results are &lt;20 the LOR and the RPD is &lt;50%</li> </ul> |
| <b>Accuracy</b>   |  |  |
| <ul style="list-style-type: none"> <li>▪ Sampling and surface water flow measurement procedures appropriate and complied with</li> <li>▪ Collection of appropriate QA/QC samples, including rinsate samples from sampling equipment, once per 10 samples</li> </ul>                           | <p>Analysis of:</p> <ul style="list-style-type: none"> <li>▪ Rinsate sample</li> <li>▪ Method blanks</li> <li>▪ Laboratory surrogate spikes</li> <li>▪ Laboratory control samples</li> <li>▪ Reference material</li> <li>▪ Matrix spikes</li> <li>▪ Matrix spike duplicates</li> <li>▪ Surrogate spikes</li> </ul> | <p>Acceptance limit between 50-150% for percent recovery of laboratory control samples, matrix spikes and surrogate spikes.<br/>All others have an acceptance limit of non-detect for PFAS.</p>  |
| <p>1. The NEPM Schedule B3 – Guideline on Laboratory Analysis of Potentially Contaminated Soil defines a laboratory process batch to consist of up to “20 samples that are similar in term of matrix and test procedure, and are processed as one unit for the QC purposes” (NEPC, 2013).</p> |  |  |

## 4 Sampling Location Rationale and Methodology

### 4.1 Monitoring Schedule

The proposed monitoring frequency for the initial implementation period as specified in the OMP (Aurecon, 2022a) is summarised in Table 4-1 below:

Table 4-1 Monitoring Schedule

| Matrix        | Location                      | Interval <sup>1</sup>          | Monitored Parameters  |
|---------------|-------------------------------|--------------------------------|---|
| Surface Water | Surface water on and off-Site | Biannual:<br>Winter and Summer | Field: Physical parameters <sup>2</sup><br>Laboratory: PFAS Suite |
| Groundwater   | Groundwater on and off-Site   | Biannual:<br>Winter and Summer | Field: Physical parameters <sup>2</sup><br>Laboratory: PFAS Suite |

Source: Aurecon 2022a

Note: 1 Individual Remediation Action Plans may alter the frequency of monitoring  
2 Physical parameters include pH, electrical conductivity, DO, temperature and redox potential

### 4.2 Surface Water Monitoring

#### 4.2.1 Monitoring Locations

The surface water monitoring will be conducted to provide ongoing information on PFAS concentrations migrating off-Site into Skeleton and Laverton Creeks. The sampling objective is to assess the spatial and temporal trends in PFAS concentrations at the stormwater outlets and the potential effectiveness of any stormwater management options implemented. The surface water monitoring locations are presented in Figure 3, Appendix A and summarised below in Table 4-2.

Table 4-2 Summary of Surface Water Monitoring Locations

| Catchment/Waterway               | Target Area                           | Total Number of Monitoring Locations | Monitoring Locations       | Justification  |
|----------------------------------|---------------------------------------|--------------------------------------|----------------------------|--|
| <b>On-Site Locations</b>         |                                       |                                      |                            |  |
| Engineered drainage system       | Former Wet Testing Area Source Area 1 | 1                                    | SW034                      | Locations target surface water and sediment within and downgradient of the source area.  |
|                                  | Western Finger Source Area 2          | 1                                    | SW043                      | Locations target surface water and sediment at discharge from Site.  |
| Doherty's Drain / Laverton Creek | Former Secondary FTA Source Area 3    | 3                                    | SW005, SW006, SW008        | Locations target surface water upgradient, within and downgradient of the source area.   |
| <b>Off-Site Locations</b>        |                                       |                                      |                            |  |
| Laverton Creek                   | Former Secondary FTA Source Area 3    | 1                                    | SW015                      | Location targets surface water downgradient of the source area in an accessible location near the point of migration off-Site. |
| Skeleton Creek                   | Former Wet Testing Area Source Area 1 | 3                                    | SW012, SW013, SW020        | Locations target surface water downgradient of the source area near the point of discharge to Skeleton Creek.                  |
|                                  | Western Finger Source Area 2          | 4                                    | SW024, SW049, SW073, SW078 | Locations target surface water downgradient of the source area near the point of discharge to Skeleton Creek.                  |

| Catchment/Waterway   | Target Area                         | Total Number of Monitoring Locations | Monitoring Locations  | Justification   |
|--|-------------------------------------|--------------------------------------|---|---|
|  | Former GEMS Compound, Source Area 4 | 1                                    | SW041   | Location targets surface water up stream of the of the former Site. Background monitoring point |
| Laverton RAAF Swamp  | Secondary off-Site sources          | 4                                    | SW027, SW030, SW042, SW045  | Locations target groundwater upgradient, within and downgradient of the source area.            |
| Sanctuary Lakes  | Secondary off-Site sources          | 11                                   | (SW035, SW036, SW037, SW038, SW039, SW083)* SW052, SW085, SW086, SW087, SW088 | Locations target groundwater upgradient, within and downgradient of the source area.            |
| *New locations (as of July 2023) at Sanctuary Lake to be sampled as agreed with Defence. |                                     |                                      |   |   |

#### 4.2.2 Surface Water Sampling Methodology

The methodology for the surface water monitoring is detailed in Table 4-3.

Table 4-3 Surface Water Monitoring Locations – Sampling Method

| Activity  | Details  |
|---|--|
| Field parameters  | <p>Surface water field parameters (i.e. pH, electrical conductivity (EC), oxidation reduction potential (ORP), dissolved oxygen (DO), and temperature) will be recorded at the time of sampling using a pre-calibrated water quality meter. The water quality meter will be bump tested daily and re-calibrated as required.</p> <p>Field observations such as flow, turbidity, presence of suspended solids and odours, sheen, oily film, nuisance organisms, floating debris or frothing will be recorded on field sampling sheets. The condition of the water body that was sampled from including the type, qualitative flow speed and channel width will also be recorded, to the extent practicable.</p>   |
| Sampling Method   | <p>Where possible, surface water samples will be collected directly into laboratory supplied sample containers using a 'Grab' (manual) sample method via a long-handled sampling device. The sample container will be secured to the end of the sampling device and will then be lowered into the water, oriented with the capped opening facing downwards to avoid the collection of surface films. Where depth permits, the sample container will be positioned at least 10 cm below the surface water level and above the sediment bed before reorienting the sample container so that the capped opening is facing upwards, allowing it to fill.</p> <p>Samples will be collected in accordance with Australian/New Zealand Standards (AS/NZS 5667.1:1998) 'Water quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples' and in accordance with Industrial Waste Resources Guidelines (IWRG), <i>Sampling and Analysis of Waters, Wastewaters, Soils and Wastes</i>, Publication 701.</p> |
| Sample Collection   | <p>Water samples will be placed directly into appropriately labelled, laboratory-supplied sample bottles.</p> <p>Sample containers will include water resistant labels attached to the sample bottles.</p>   |
| Decontamination   | <p>All re-usable sampling equipment (such as the long-handled sampling device) will be thoroughly washed using phosphate-free detergent (Liquinox), and subsequently double rinsed with de-ionised water before the sample collection.</p>   |
| Sample identification, preservation, transport and holding times. | <p>Each sample will be labelled with the sample location, date, project identification number and sampler's initials. Sample labelling and naming will be in accordance with Annex L of the DCMM (Defence, 2021b).</p> <p>Samples will be contained in appropriately preserved laboratory supplied bottles (Teflon-free) and packed in chilled containers for delivery to the laboratory under Chain of Custody (CoC) documentation.</p> <p>Sample containers, preservation procedures, sample storage requirements and holding times will comply with the requirements set out in "Australian Standard AS/NZS 5567.1:1998 and AS 4482.1".</p>   |
| Field Records   | <p>Field records will include the following information:</p> <ul style="list-style-type: none"> <li>▪ Sampling time, date and name of the sampler;</li> <li>▪ Weather conditions;</li> <li>▪ Sample collection method;</li> <li>▪ Sampling equipment decontamination procedures where non-disposable sampling equipment is utilised; and</li> <li>▪ Calibration and bump test records.</li> </ul> <p>All sample documentation including field notebooks, reporting records, CoC and equipment calibration certificates and procedures will be retained within project files.</p>   |
| Laboratory Testing  | <p>All surface water samples will be submitted for the PFAS analytical suite<sup>1</sup>. The full list of analytes is included in Appendix B.</p>   |
| Laboratory Testing – Quality Control                              | <p>Surface water QC samples will be collected at the following frequencies as detailed in the OMP (Aurecon 2022a)</p> <ul style="list-style-type: none"> <li>▪ Field duplicate (intra-laboratory) samples of 1 per 10 water samples (or 1 per batch if the batch is less than 10 samples) to be sent to the primary laboratory.</li> </ul>   |

| Activity   | Details  |
|--|--|
|  | <ul style="list-style-type: none"> <li>▪ Field split (inter-laboratory) samples of 1 per 10 water samples to be sent to the secondary laboratory.</li> <li>▪ Rinsate blank sample of 1 per day to be collected off re-used sampling equipment (e.g. interface probe).</li> <li>▪ Trip blank samples of 1 per shipment to be included in the chilled sample containers upon transport to the laboratory.</li> </ul> <p>QC samples will be tested for a full PFAS analytical suite (see Appendix B).</p> |
| Laboratory Accreditation   | <p>All surface water analysis will be undertaken by the following NATA-accredited laboratories:</p> <ul style="list-style-type: none"> <li>▪ Primary analysis will be undertaken by ALS Global Laboratories (Springvale, Victoria).</li> <li>▪ Secondary analysis will be undertaken by Eurofins (Dandenong South, Victoria).</li> </ul>   |
| <p>1. Analytes include Perfluoro carboxylates (PFCAs), Fluorotelomer sulfonates (FTSs), Perfluoroalkyl sulfonates (PFASs), Perfluorooctane sulfonamidoethonals and perfluorooctane sulfonamidoacetic acids as per OMP (Aurecon 2022a).</p> |  |

### 4.3 Groundwater Monitoring

#### 4.3.1 Monitoring Locations

The network of on-site groundwater monitoring wells to be sampled and gauged only as per OMP (Aurecon 2022a) is summarised in Table 4-4 and Table 4-5. Available well construction details for the OMP wells are included in Appendix C, and a table presenting current and alternate IDs for each well is included in Appendix D.

Monitoring will provide ongoing measurement of PFAS concentration within groundwater, in addition to the quality (field parameters) of groundwater. Gauging data will also be used to evaluate whether any significant changes have occurred in the flow direction of groundwater. Groundwater monitoring well locations are shown on Figure 4 & 5, Appendix A.

Table 4-4 Groundwater monitoring locations

| Catchment/Waterway             | Target Area                           | Total Number of Monitoring Locations | Monitoring Locations  | Justification  |
|--------------------------------|---------------------------------------|--------------------------------------|---|--|
| <b>On-Site Locations</b>       |                                       |                                      |   |  |
| Doherty's drain/Laverton Creek | Former Secondary FTA, Source Area 3   | 4                                    | MW115, MW144, MW146, MW217                                    | Locations target groundwater upgradient, within and downgradient of the source area.       |
| Skeleton Creek                 | Former Wet Testing Area Source Area 1 | 6                                    | MW117, MW118, MW163, MW207, MW208, MW211                      | Locations target groundwater upgradient, within and downgradient of the source area.       |
|                                | Former Wet Testing Area Source Area 1 | 3                                    | MW105, MW107, MW109   | Locations monitor changes in groundwater concentration at the point of migration off Site. |
|                                | Western Finger Source Area 2          | 9                                    | MW102, MW103, MW120, MW152, MW155, MW182, MW185, MW192, MW200 | Locations target groundwater upgradient, within and downgradient of the source area.       |
|                                | Former GEMS Compound, Source Area 4   | 4                                    | MW110, MW138, MW139, MW140                                    | Locations target groundwater upgradient, within and downgradient of the source area.       |
| <b>Off-Site Locations</b>      |                                       |                                      |   |  |
| Skeleton Creek                 | Wet Testing Area Source Area 1        | 3                                    | MW123, MW126, MW228   | Locations target groundwater downgradient of the source                                    |

| Catchment/Waterway   | Target Area                         | Total Number of Monitoring Locations | Monitoring Locations        | Justification   |
|--|-------------------------------------|--------------------------------------|-----------------------------|---|
|  |                                     |                                      |                             | area near the point of discharge to Skeleton Creek.   |
|  | Western Finger Source Area 2        | 2                                    | MW121, MW124                | Locations target groundwater downgradient of the source area near the point of discharge to Skeleton Creek. |
|  | Former GEMS Compound, Source Area 4 | 1                                    | MW229                       | Locations target groundwater downgradient of the source area.   |
| Laverton RAAF Swamp  | Secondary off-Site sources          | 4                                    | MW129*, MW130, MW131, MW137 | Locations target groundwater upgradient, within and downgradient of the source area.                        |
| *New Location (as of July 2023) in Laverton RAAF Swamp to be sampled as agreed with Defence. |                                     |                                      |                             |   |



Table 4-5 RAAF Williams (Laverton) Groundwater Gauge Only Locations

| Item  | Total No. of Locations | Monitoring Well ID  |
|---|------------------------|---|
| Groundwater Wells to be Gauged Only ( <b>On-Site</b> )  | 40                     | MW100, MW101, MW104, MW106, MW108, MW111, MW112, MW113, MW114, MW116, MW119, MW145, MW154, MW157, MW159, MW164, MW165, MW168, MW171, MW173, MW175, MW176, MW181, MW186, MW188, MW190, MW194, MW196, MW197, MW201, MW203, MW206, MW209, MW212, MW213, MW214 MW215, MW218, MW222, MW225 |
| Groundwater Wells to be Gauged Only ( <b>Off-Site</b> ) | 10                     | MW122, MW125, MW127, MW128, MW132, MW133, MW134, MW135, MW136, MW230  |

### 4.3.2 Groundwater Sampling Methodology

Groundwater monitoring will be undertaken by no purge HydraSleeve™ method as detailed in Table 4-6.

Table 4-6 Groundwater Monitoring Wells – Sampling Method

| Activity                                      | Details  |
|---|--|
| Well Gauging                                  | <p>Standing Water Level (SWL) will be gauged using an interface probe and measured against a specified mark at the top of the well casing.</p> <p>A consolidated groundwater gauging event (initial gauging round) will be undertaken across the first two days of each monitoring event to the extent practicable. Wells which have specific or difficult access constraints will not be included.</p>  |
| Groundwater Field Parameters                  | <p>Groundwater water quality parameter field measurements (field parameters) will be recorded with a water quality meter before sample collection using extra sample water from within the deployed HydraSleeve™ decanted into a clean jar.</p> <p>The following field parameters will be recorded using a water quality meter:</p> <ul style="list-style-type: none"> <li>▪ pH;</li> <li>▪ Electrical Conductivity (EC);</li> <li>▪ Oxidation Reduction Potential (ORP);</li> <li>▪ Dissolved Oxygen (DO); and</li> <li>▪ Temperature.</li> </ul> <p>All field instruments (e.g. water quality meter) will be calibrated prior to field events and as required during monitoring to optimise the accuracy of the measurements taken. The water quality meter will be bump tested daily and re-calibrated as required.</p> <p>Field observations such as colour, presence of suspended solids, turbidity, and the presence of odours, sheen, oily film, nuisance organisms, floating debris or frothing will also be recorded on field sampling sheets, if relevant.</p> |
| Deployment of HydraSleeve™                    | <p>HydraSleeve™ will be deployed to the base of wells, or a minimum of 2.5 m within the screen interval. If sufficient water column is available, the HydraSleeve™ will be positioned so it does not sit at the base of the well where sediment may be present. A top weight will be utilised if water depth of screen require compression of the HydraSleeve™. Used HydraSleeves™ will be replaced with a new HydraSleeve™ after sample collection at each location.</p> <p>Well construction details, including screen intervals, are presented in Appendix C.</p>   |
| Retrieval of HydraSleeve™ (Sample Collection) | <p>HydraSleeve™ sampling devices will be left in wells for a minimum of 4 hours when deployed with bottom weights only, to allow restabilisation of the well following the slight disturbance caused by sampler deployment.</p> <p>For wells with a shallow water column (nominally less than 2.5 m in height, although depending on the length of the HydraSleeve™), HydraSleeve™ sampling devices will be deployed with both top and bottom weights, and will be left in the well for a minimum of 24 hours. This is to allow the top weight time to compress the HydraSleeve™ into the bottom of the well and restabilisation of the well following the slight disturbance caused by sampler deployment.</p> <p>Samples will be collected using a continuous pull method at a rate of approximately 30 cm per second, allowing the water to pass through the check valve into the sample sleeve.</p> <p>Samples will be discharged immediately (to minimise changes in chemistry) via discharge tube.</p>   |
| Sample collection by bailer                   | <p>Where insufficient water is retrieved with the HydraSleeve™, samples will be collected by disposable high-density polyethylene (HDPE) bailer. Wells will be purged 3 bore volumes, or until dry, whichever is sooner, prior to sample collection.</p>   |
| Field Records                                 | <p>Field records will include the following information:</p> <ul style="list-style-type: none"> <li>▪ Sampling time, date and name of the sampler;</li> <li>▪ Weather conditions;</li> <li>▪ Sample collection method;</li> </ul>  |

| Activity   | Details  |
|--|--|
|  | <ul style="list-style-type: none"> <li>Sampling equipment decontamination procedures where non-disposable sampling equipment is utilised; and</li> <li>Calibration and bump test records.</li> </ul> <p>All sample documentation including field notebooks, reporting records, CoC and equipment calibration certificates and procedures will be retained within project files.</p>  |
| Decontamination procedure  | <p>Used HydraSleeves™ will be replaced with a new HydraSleeve™ after sample collection at each location, thus removing the need for decontamination.</p> <p>All re-usable sampling equipment (such as the interface probe) will be thoroughly washed using phosphate-free detergent (Liquinox), then double rinsed with de-ionised water before the sample collection.</p>   |
| Waste Management   | <p>All liquid wastes generated from the OMP activities will be temporarily stored on-site (in an agreed location as approved by Base) within either a drum or an Intermediate Bulk Container (IBC) and disposed off-site to a licensed and/or recycling facility. Disposal of the liquid waste is anticipated to occur once the drum(s) or container(s) are full, or as required.</p> <p>Any solid waste generated during the sampling event will be disposed of either off-Site or in appropriate bins on-Site, as approved by Base Support.</p>  |
| Sample identification, preservation transport and holding times  | <p>Each sample will be labelled with the sample location, date, project identification number and sampler's initials. Sample labelling and naming will be in accordance with Annex L of the Defence Contamination Management Manual (DCMM (Defence, 2021b))</p> <p>Samples will be collected directly into appropriately preserved laboratory supplied bottles (Teflon-free) and packed in chilled containers for delivery to the laboratory under CoC documentation.</p> <p>Sample containers, preservation procedures, sample storage requirements and holding times will be undertaken in accordance with the requirements set out in Australian Standard AS/NZS 5567.1:1998 and AS 4482.1.</p>   |
| Laboratory Testing   | <p>All groundwater samples to be submitted for PFAS analytical suite<sup>1</sup> twice yearly. The full list of analytes is included in Appendix B.</p>  |
| Laboratory Testing – Quality Control   | <p>Groundwater QC samples will be collected at the following frequencies as detailed in the OMP (Aurecon, 2022a):</p> <ul style="list-style-type: none"> <li>Field duplicate (intra-laboratory) samples of 1 per 10 water samples (or 1 per batch if the batch is less than 10 samples) to be sent to the primary laboratory.</li> <li>Field split (inter-laboratory) samples of 1 per 10 water samples to be sent to the secondary laboratory.</li> <li>Rinsate blank sample of 1 per day to be collected off re-used sampling equipment (e.g. interface probe).</li> <li>Trip blank samples of 1 per shipment to be included in the chilled sample containers upon transport to the laboratory.</li> </ul> <p>QC samples will be tested for a full PFAS analytical suite (see Appendix B).</p> |
| Laboratory Accreditation   | <p>All groundwater analysis will be undertaken by the following NATA-accredited laboratories:</p> <ul style="list-style-type: none"> <li>Primary analysis will be undertaken by ALS Global Laboratories (Springvale, Victoria).</li> <li>Secondary analysis will be undertaken by Eurofins (Dandenong South, Victoria).</li> </ul>   |
| <p>1. Analytes include Perfluoro carboxylates (PFCAs), Fluorotelomer sulfonates (FTSs), Perfluoroalkyl sulfonates (PFASs), Perfluorooctane sulfonamidoethonals and perfluorooctane sulfonamidoacetic acids as per OMP (Aurecon 2022a).</p> |  |

#### 4.4 Quality Control Contingency Measures

In the event there are any issues identified with quality control samples, such as detects being reported in a blank, Cardno will request the laboratories to undertake a detailed review of the results, and to carry out re-analysis of the sample (if necessary) to confirm the detect. In the event that the detect in a blank is confirmed, Cardno will notify Defence and include a discussion as to the potential cause or source of the detect in the blank sample, if it can be determined, in the QA/QC evaluation prepared for each factual report. The QA/QC evaluation will also include discussion of any RPD exceedances, internal laboratory quality

outliers or other data quality issues which are identified during the sampling event, and whether any of these issues are considered to impact on the overall reliability and usability of the data set.

#### 4.5 Data Management

All data collected as part of the monitoring program will be reviewed and managed in accordance with the requirements of Annex L of the DCMM (Defence, 2021b), and uploaded into Defence’s Environmental Data Management Software (EDMS). Data management will include the following:

- > The Defence ESdat email address ([DERP.LabReports@esdat.com.au](mailto:DERP.LabReports@esdat.com.au)) will be included on CoCs as a laboratory report recipient.
- > The laboratory Project ID and the laboratory provided ESdat files will be populated to match the Project ID setup in the Defence ESdat.
- > The location code and sample naming conventions outlined in Annex L of the DCMM will be followed.
- > Field data will be uploaded to Defence’s EDMS.
- > Laboratory data will be uploaded to Defence’s EDMS, associated QA/QC data will be reconciled, and the laboratory data will be approved.

### 5 Assessment Criteria

#### 5.1 Groundwater and Surface Water

Screening criteria for the OMP have been selected in accordance with the PFAS NEMP (2020) and apply to monitoring at RAAF Williams (Laverton) and the Management Area. For surface water and groundwater, the screening criteria will be from the PFAS NEMP (2020) for the protection of aquatic ecosystems (95% species protection) and from the *Guidance on Per and Polyfluoroalkyl (PFAS) in Recreational Water* (National Health and Medical Research Council 2019) for protection of human health from recreational water use (refer Table 5-1). The surface water and groundwater are not suitable for drinking water and a screening criterion in relation to drinking water is not considered appropriate.

Table 5-1 PFAS Criteria for Groundwater and Surface Water

| Exposure Scenario  | Adopted Assessment Criteria |      |      |                  |   |
|--|-----------------------------|------|------|------------------|---|
|  | PFOS + PFHxS                | PFOA | PFOS | Guidance         | Original References                                 |
|  | µg/L                        |      |      |                  |   |
| Recreational water quality guideline   | 2                           | 10   | -    | PFAS NEMP (2020) | National Health and Medical Research Council (2019) |
| Interim marine water (95% species protection – slightly to moderately disturbed systems) | -                           | 220  | 0.13 | PFAS NEMP (2020) | National Health and Medical Research Council (2019) |

### 6 Deviations From the OMP

#### 6.1.1 Groundwater

The following deviations to groundwater locations from the OMP were identified and are listed below in Table 6-1

Table 6-1 Groundwater Deviations from the OMP

| Location | Sample/Gauge   | Status                | Comment   | Date of Change |
|----------|----------------|-----------------------|---|----------------|
| MW101    | Gauge Only     | Unable to open        | Well requires maintenance, the gatic cover is rusted hence requires replacement/repair.           | March 2023     |
| MW104    | Gauge Only     | Unable to open        | Well requires maintenance, the gatic cover is rusted hence requires replacement/repair.           | March 2023     |
| MW119    | Gauge Only     | Unable to open        | Well requires maintenance damaged bolts on the gatic lid  | March 2023     |
| MW122    | Gauge Only     | Not Located/Destroyed | Presumed to be destroyed as it appears to have been covered by concrete.                          | March 2023     |
| MW127    | Gauge Only     | Not Located/Destroyed | Presumed destroyed as it appears to have been buried.   | March 2023     |
| MW129    | Gauge & Sample | New sampling location | New sampling location added as of July 2023 to monitor PFAS concentrations downgradient of MW131. | July 2023      |
| MW230    | Gauge Only     | Not Located/Destroyed | Well not located and may be destroyed as it appears to have been buried, new developed park       | March 2023     |

### 6.1.2 Surface Water

The following deviations to the surface water locations from the OMP were identified and are listed below in Table 6-2

Table 6-2 Surface Water Deviations from the OMP

| Location                 | Sample/Gauge | Status       | Comment  | Date of change |
|--------------------------|--------------|--------------|--|----------------|
| SW035 to SW039 and SW083 | Sample       | New location | New locations added as of July 2023 at the Sanctuary Lakes with the objective of collecting representative samples within the lake where groundwater could be potentially discharging. | July 2023      |

## 7 Reporting

### 7.1 Factual Reporting

A factual report should be produced at the completion of each monitoring event that summarises the data and findings of each monitoring event. The report will be prepared in accordance with the Defence *PFAS OMP Factual Report Guidance* document (Department of Defence, 2021). Each factual report will present the findings and contain the following information:

- > Introduction.
- > Scope of work completed.
- > Field activities undertaken and description of sampling methodologies used.
- > Field observations (e.g. condition of monitoring wells, description of purged water) and water quality parameter measurements.
- > Use of appropriate nomenclature of sampling locations as per DCMM Annex L (Defence, 2021b).
- > Summary of any changes to the monitoring network condition that may affect data integrity, or require rectification works, and recommendations for repair, replacement or decommissioning of a location.
- > Evaluation of the applicability of adopted assessment criteria.

- > Review of the suitability of the data for assessment purposes (QA/QC evaluation).
- > Summary tables presenting gauged groundwater and surface water levels.
- > Presentation of inferred groundwater contours for the uppermost NVA aquifer and inferred groundwater flow direction in a figure.
- > Summary tables of analytical results in comparison to adopted assessment criteria generated through management of data on the Defence ESdat database, and naming of sampling locations as per DCMM Annex L (Defence, 2021b).
- > Figures showing results in accordance with the OMP Factual Report preparation guidance.
- > Laboratory reports, CoC documentation, field sampling records, data validation and QA/QC details, equipment calibration certificates and bump test records and other relevant documentation.
- > Any deviations from the SAQP encountered during completion of the sampling event, justification for the deviations and any impacts of these changes on the data or program.

In the event that further investigation, management and/or remediation are required, recommendations will be presented in a separate 'technical memorandum'.

## 7.2 Interpretive Reporting

Upon completion of each 12-month monitoring period an annual interpretive report (AIR) will be prepared. The report will be prepared in accordance with the Defence *PFAS OMP Annual Interpretive Report Guidance* document (Department of Defence, 2022). As a minimum, each interpretive report should include the following:

- > The factual information described in Section 7.1.
- > Evidence of compliance with the requirements of the SAQP and meeting stated objectives of the OMP.
- > Relevant figures depicting sampling locations and site-specific hydrogeological features.
- > Use of appropriate nomenclature of sampling locations as per DCMM Annex L. (Defence, 2021b)
- > Laboratory results and analysis including comparison with relevant screening criteria as identified in each OMP; data to be managed through the Defence ESdat database, and naming of sampling locations as per DCMM Annex L (Defence, 2021b).
- > Assessment and commentary on appropriate Quality Assurance/ Quality Control (QA/QC) procedures.
- > A discussion of analytical results in relation to the following:
  - Trends in PFAS concentrations, including an assessment of temporal changes and/or changes to the extent of PFAS impacts. Trends should be assessed using an appropriate statistical analysis approach (e.g. using Mann-Kendall or similar analysis), with a specified level of confidence based upon the number of monitoring rounds completed.
  - Consideration, based on data trends, as to whether any of the existing remediation / management measures should be re-assessed, with a view to potential modification, supplementation, or cessation.
  - Assessment of whether changes to the CSM and/or risk assessment are required.
  - Whether recalibration or changes to the groundwater model are required to provide a better understanding of the potential future extent of PFAS impact in groundwater.
- > Based on the data obtained, an assessment of the OMP sampling requirements with a view to establishing whether:
  - The number of locations monitored could be reduced, such as where PFAS concentrations are stable and are considered to present a low risk to receptors.
  - Additional monitoring locations are required, including the installation of new monitoring wells or sampling of additional existing wells (and/or private bores) to provide better understanding of the nature, extent or magnitude of PFAS impacts in a particular portion of the MA.
  - The frequency of monitoring should increase or decrease to provide better understanding of PFAS concentration fluctuations and potential risks to receptors.

- The requirement for additional investigations or consideration of the requirement for additional sampling such as sediment or biota (Aurecon, 2022a).
- > An overview of remedial works or construction and maintenance activities undertaken in the MA during the reporting period, which may impact the CSM.
- > All deviations from the SAQP encountered in the previous year's monitoring will be documented, along with a statement of how these deviations impact on the data quality objectives or overall objectives of the OMP.
- > A statement as to whether the risk profile has changed overall, or at any specific location in the MA. Based on potential changes to the risk profile, recommendations would be made as to whether this should trigger an OMP and/or PMAP review, or other actions.
- > The sampling event Factual Reports and SAQP for the relevant year of monitoring will be appended to the AIR.

In addition to the AIR, a Factsheet summarising the 12-month period of sampling and findings will be prepared to accompany the publication of the AIR.

### 7.3 SAQP Review

Prior to each monitoring event, the SAQP will be reviewed to ensure it complies with the following guidelines:

- > PFAS National Environmental Management Plan (NEMP) Version 2.0, HEPA, 2020.
- > National Environment Protection (Assessment of Site Contamination) Measure (NEPM), National Environment Protection Council (NEPC), 2013.
- > Department of Defence, 2016. Routine Environment Water Quality Monitoring Manual.
- > Standards Australia 1998. AS/NZ 5667:1998 Water quality – sampling.
- > Australian and New Zealand Guidelines, 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality; and
- > State guidelines: Environment Protection Authority (EPA) or equivalent state environmental regulators relevant guidelines e.g. Victoria's Industrial Waste Resource Guidelines (IWRG) Sampling and Analysis of Waters, Wastewaters, Soils and Wastes, Publication 701.

Any changes to the SAQP identified as part of the review are to be documented by way of a revision of the SAQP.

## 8 References

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### General References

1. Australian and New Zealand Guidelines (2018), Australian and New Zealand Guidelines for Fresh and Marine Water Quality.
2. Australian Standard AS 4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 – Non-volatile and semi-volatile compounds (withdrawn as pending revision, referred to for 'state of knowledge').
3. Department of Defence (2019), Pollution Prevention Management Manual – Annex 1L: Pollution Prevention Guidance - Routine Water Quality Monitoring.
4. Department of Defence (2021a), PFAS OMP Factual Report Guidance, May 2021.
5. Department of Defence (2021b), Contamination Management Manual (DCMM), Annex L – Data Management, August 2019, Amended June 2021.
6. Department of Defence (2022), PFAS OMP Annual Interpretive Report Guidance, Version 0.4, October 2022.
7. Department of Defence, Department of Energy (2018), Quality System Manual Schedule B15 USEPA DQO Process.
8. EPA Victoria (2009), Industrial Waste Resources Guidelines (IWRG), Sampling and Analysis of Waters, Wastewaters, Soils and Wastes, Publication 701.
9. EPA Victoria (2020), Interim Position Statement on PFAS, Publication 1669.4.
10. EPA Victoria (2022), Groundwater Sampling Guidelines, Publication 669.1, February 2022.
11. The Heads of EPAs Australia and New Zealand (HEPA; 2020) PFAS National Environmental Management Plan (NEMP), Version 2.0, January 2020.
12. National Environment Protection Council (NEPC; 2013), National Environmental Protection (Assessment of Site Contamination) Measure (as amended), registered May 2013.
13. National Health and Medical Research Council (2011 – updated 2018) National Water Quality Management Strategy Australian Drinking Water Guidelines 6, August 2018.
14. National Health and Medical Research Council (NHMRC), August 2019, Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water.
15. Standards Australia/Standards New Zealand (1998) AS5667.1:1998 'Water Quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.'
16. U.S. Environmental Protection Agency (USEPA; 2006), Guidance for the Data Quality Objectives Process (EPA QA/G-4).
17. USEPA (2002), Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8), November 2002.

### Site Specific References

18. Golder Associates (2017), *Preliminary Site Investigation for PFAS RAAF Base Williams Laverton VIC 0927*, September 2017.
19. Aurecon Australasia Pty Ltd (2020). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)- Detailed Site Investigation*, Prepared for the Department of Defence, November 2020.
20. Aurecon Australasia Pty Ltd (2021). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)- Detailed Site Investigation Addendum*, Prepared for the Department of Defence, December 2021.



21. Aurecon Australasia Pty Ltd (2022a). *Ongoing Management Plan at RAAF Williams (Laverton)-*, Prepared for the Department of Defence, August 2022.
22. Aurecon Australasia Pty Ltd (2022b). *PFAS Management Area Plan at RAAF Williams (Laverton)-*, Prepared for the Department of Defence, August 2022.
23. Aurecon Australasia Pty Ltd (2022c). *Investigation of per- and poly-fluoroalkyl substances at RAAF Williams (Laverton)-Off-site ecological risk assessment*, Prepared for the Department of Defence, May 2022.
24. Environmental Risk Sciences Pty Ltd (2022a), *Human Health Risk Assessment for PFAS from consumption of home grown produce at Williams Landing, VIC*, March 2022.
25. Environmental Risk Sciences Pty Ltd (2022b), *Human Health Risk Assessment Skeleton Creek and Sanctuary Lakes, VIC*, May 2022.
26. Environmental Risk Sciences Pty Ltd (2022c), *Human Health Risk Assessment: Skeleton Creek and Sanctuary Lakes*, Prepared for Aurecon Australasia Pty Ltd and the Australian Government Department of Defence, May 2022

RAAF Williams (Laverton)

APPENDIX

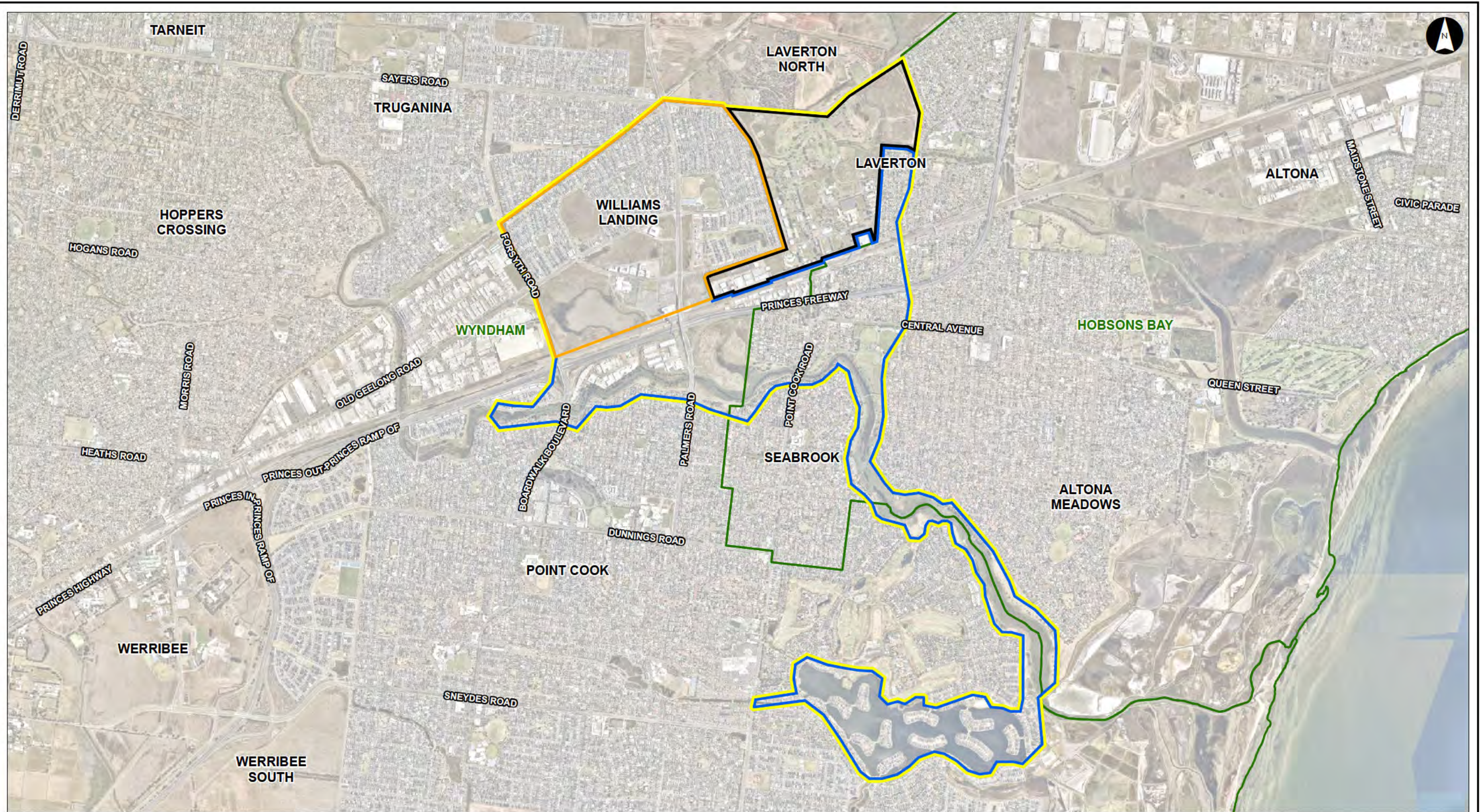
A

FIGURES

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**Site Locality Plan**

RAAF Williams Laverton  
 Biannual Sampling  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0274-SiteLocalityPlan\_L  
 Drawn By: AL  
 Figure No: 1 | Rev: 1  
 Date: 2023-07-11

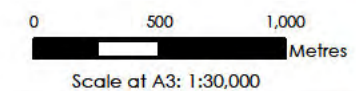


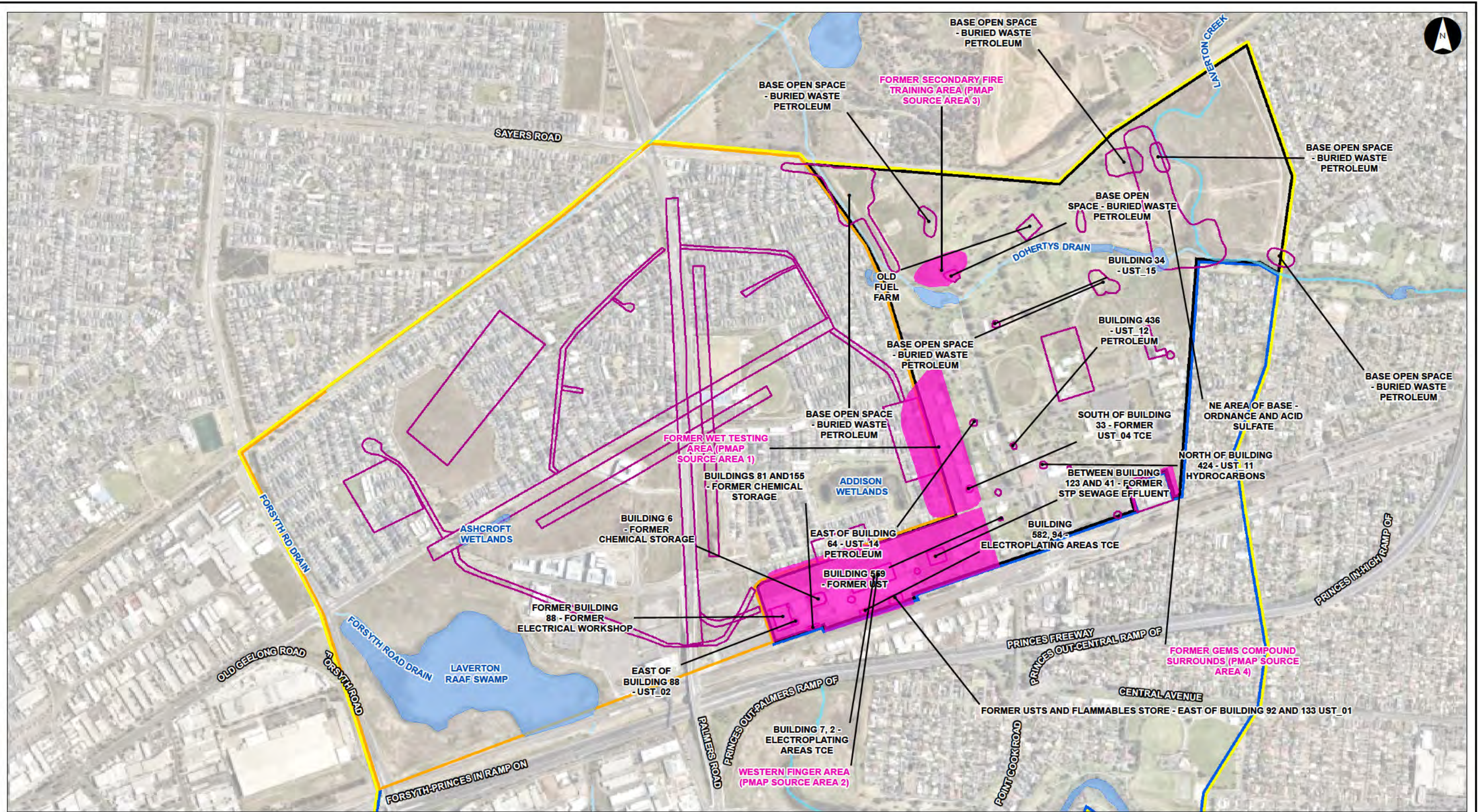
**Legend**

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- LGA Boundary

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. LGA and Road Data Supplied by DELWP










**Site Features:  
Key PFAS source Areas**

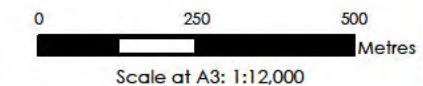
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 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0329-SiteFeatures\_L  
 Drawn By: AL  
 Figure No: 2 | Rev: 1  
 Date: 2023-07-11

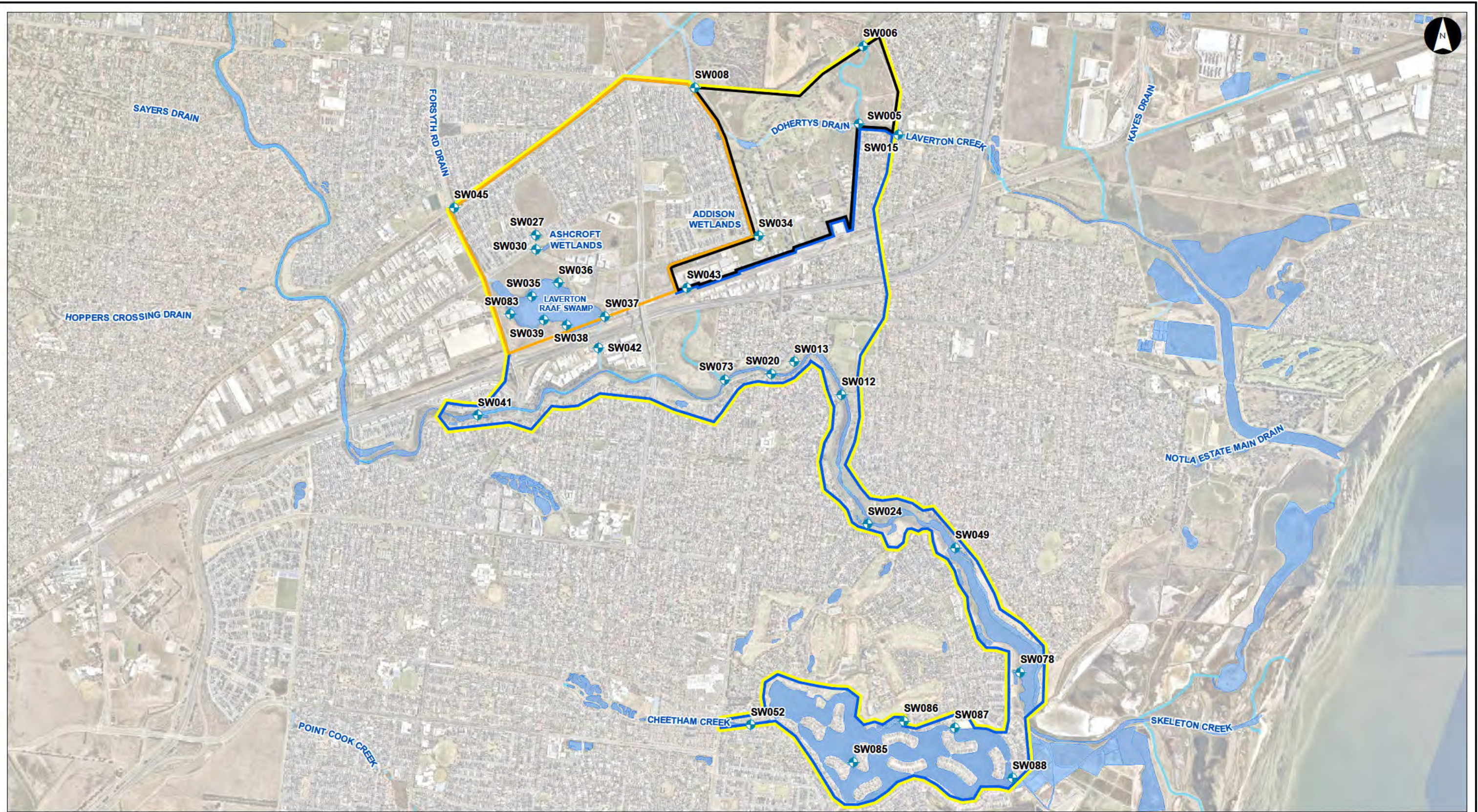
**Legend**

- |  |  |
|--|--|
|  Management Area  |  Drainage  |
|  On-Site Management and Monitoring Area                       |  Watercourse   |
|  Off-Site Monitoring Area                                     |  Potential historic AFFF use, storage or disposal, On-Base |
|  Former Extent of RAAF Williams (Laverton) - Williams Landing |  Historic AFFF use, storage or disposal                    |
|  Wetlands/ Waterbodies  |  |

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





### Surface Water Sampling Locations

RAAF Williams Laverton  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0286-SW\_SampleLocations\_L  
 Drawn By: AL  
 Figure No: 3 | Rev: 2  
 Date: 2023-07-13

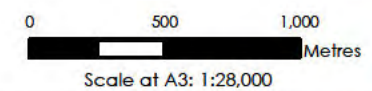


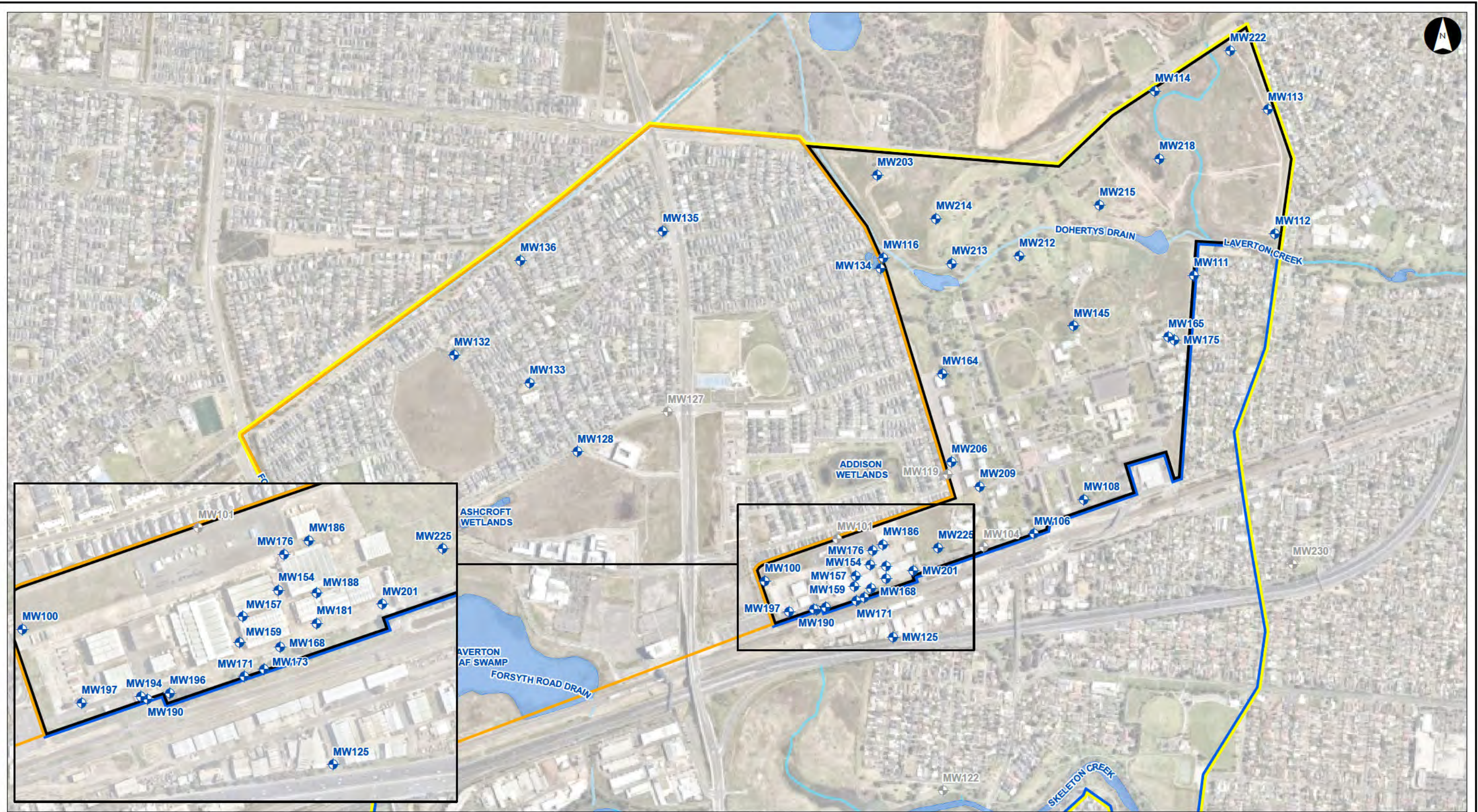
### Legend

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- ◆ Surface Water Sample Location

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





### Groundwater Gauge Only Locations

RAAF Williams Laverton  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0287-GW\_GaugingLocations\_L  
 Drawn By: AL  
 Figure No: 4 | Rev: 2  
 Date: 2023-07-11

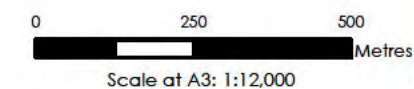


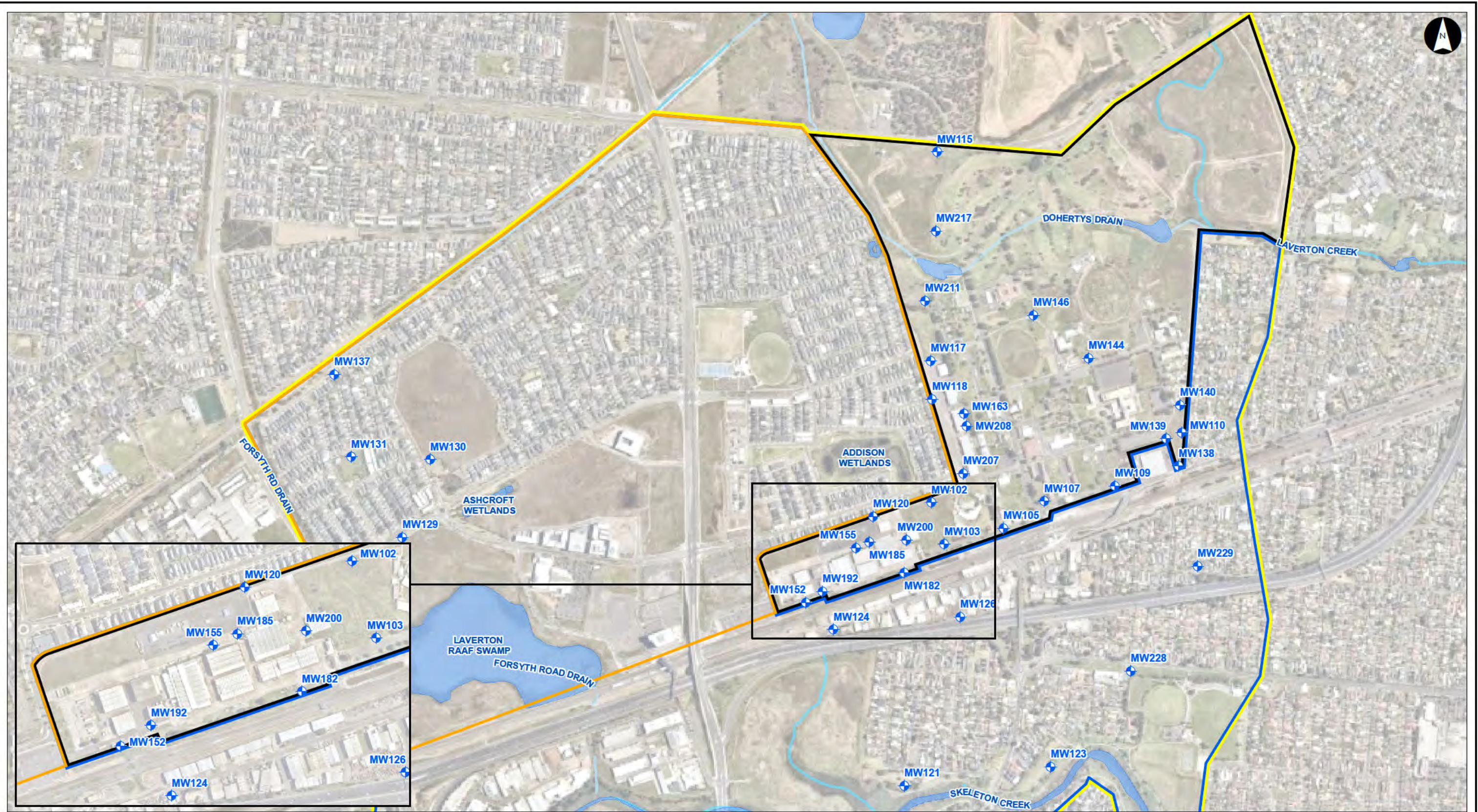
### Legend

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- ◆ Groundwater Gauge Only Locations
- ◆ Groundwater Gauge Only Locations - Not Located/ Destroyed/ Damaged

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP





### Groundwater Sampling Locations

RAAF Williams Laverton  
 Client: Department of Defence  
 Project Code: DEF19008  
 Map: DEF19008-GS-0288-GW\_SamplingLocations\_L  
 Drawn By: AL  
 Figure No: 5 | Rev: 2  
 Date: 2023-07-11

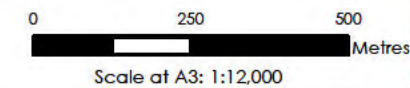


### Legend

- Management Area
- On-Site Management and Monitoring Area
- Off-Site Monitoring Area
- Former Extent of RAAF Williams (Laverton) - Williams Landing
- Wetlands/ Waterbodies
- Drainage
- Watercourse
- ◆ Groundwater Sample Location

Notes:  
 1. Coordinate System: GDA 1994 MGA Zone 55

References:  
 1. Aerial Imagery Supplied by Nearmap (January, 2023)  
 2. Wetland/ Waterbodies and Watercourse Data Supplied by DELWP



APPENDIX

# B

FULL PFAS ANALYTICAL SUITE



now





**PFAS Analytical Suite**

| Group                                     | Analyte   |
|---|---|
| <b>Perfluoroalkane sulfonic acids</b>     | Perfluorobutane sulfonic acid (PFBS)                      |
|   | Perfluoropentane sulfonic acid (PFPeS)                    |
|   | Perfluorohexane sulfonic acid (PFHxS)                     |
|   | Perfluoroheptane sulfonic acid (PFHpS)                    |
|   | Perfluorooctane sulfonic acid (PFOS)                      |
|   | Perfluorodecane sulfonic acid (PFDS)                      |
| <b>Perfluoroalkane carboxylic acids</b>   | Perfluorobutanoic acid (PFBA)                             |
|   | Perfluoropentanoic acid (PFPeA)                           |
|   | Perfluorohexanoic acid (PFHxA)                            |
|   | Perfluoroheptanoic acid (PFHpA)                           |
|   | Perfluorooctanoic acid (PFOA)                             |
|   | Perfluorononanoic acid (PFNA)                             |
|   | Perfluorodecanoic acid (PFDA)                             |
|   | Perfluoroundecanoic acid (PFUnDA)                         |
| <b>Perfluoroalkyl sulfonamides</b>        | Perfluorooctane sulfonamide (FOSA)                        |
|   | N-Methyl perfluorooctane sulfonamide (MeFOSA)             |
|   | N-Ethyl perfluorooctane sulfonamide (EtFOSA)              |
|   | N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)      |
|   | N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)       |
|   | N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA) |
| <b>(n:2) Fluorotelomer sulfonic acids</b> | 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)               |

APPENDIX

C

WELL CONSTRUCTION DETAILS



now



| Property | Location Code | Alternative Name | Monitoring Type  | Latitude        | Longitude         | TOC         | Depth to well bottom | Top of Screen Depth | Bottom of screen depth | Aquifer                          |
|----------|---------------|------------------|------------------|-----------------|-------------------|-------------|----------------------|---------------------|------------------------|----------------------------------|
| Onsite   | MW100         | -                | Gauge Only       | -37.86737402    | 144.750765039° E  | 0.0m        | 10.5m                | 4.5m                | 10.5m                  | Not encountered                  |
| Onsite   | MW101         | -                | Gauge Only       | -37.86620106    | 144.753485044° E  | 0.0m        | 10m                  | 6m                  | 10m                    | Not encountered                  |
| Onsite   | MW102         | -                | Gauge and Sample | 37.865515670° S | 144.756868324° E  | 10.986m AHD | 11.5m                | 9.2m                | 10.2m                  | Not encountered                  |
| Onsite   | MW103         | -                | Gauge and Sample | 37.866746727° S | 144.757313410° E  | 10.785m AHD | 6.7m                 | 4.7m                | 6.7m                   | Not encountered                  |
| Onsite   | MW104         | -                | Gauge Only       | 37.866527129° S | 144.758879639° E  | 9.654m AHD  | 6.5m                 | 4.5m                | 6.5m                   | Not encountered                  |
| Onsite   | MW105         | -                | Gauge and Sample | 37.866329399° S | 144.759507979° E  | 10.477m AHD | 7.1m                 | 3.5m                | 6.5m                   | Water encountered at 6.5m        |
| Onsite   | MW106         | -                | Gauge Only       | 37.866181684° S | 144.760752261° E  | 10.637m AHD | 6.5m                 | 3m                  | 6m                     | Not encountered                  |
| Onsite   | MW107         | -                | Gauge and Sample | 37.865561598° S | 144.761035771° E  | 11.628m AHD | 8.6m                 | 4m                  | 8m                     | Not encountered                  |
| Onsite   | MW108         | -                | Gauge Only       | 37.865219151° S | 144.762617616° E  | 10.858m AHD | 7.4m                 | 4.4m                | 7.4m                   | Water encountered at 6.5m        |
| Onsite   | MW109         | -                | Gauge and Sample | 37.865167032° S | 144.763658926° E  | 11.054m AHD | 7.3m                 | 4m                  | 7m                     | Water encountered at 6.5m        |
| Onsite   | MW110         | -                | Gauge and Sample | 37.863648023° S | 144.766171199° E  | 11.41m AHD  | 9.3m                 | 4m                  | 9m                     | Water encountered at 9m          |
| Onsite   | MW111         | -                | Gauge Only       | 37.858733397° S | 144.766874829° E  | 11.428m AHD | 7.8m                 | 4m                  | 7m                     | Water encountered at 7m          |
| Onsite   | MW112         | -                | Gauge Only       | 37.857573910° S | 144.769907549° E  | 9.201m AHD  | 9m                   | 6m                  | 9m                     | Water encountered at 7m          |
| Onsite   | MW113         | -                | Gauge Only       | 37.853934093° S | 144.769759377° E  | 13.458m AHD | 10.2m                | 7m                  | 10m                    | Water encountered at 9m          |
| Onsite   | MW114         | -                | Gauge Only       | 37.853302922° S | 144.7799m AHD     | 11.779m AHD | 8.2m                 | 5.2m                | 9.2m                   | Water encountered at 6m          |
| Onsite   | MW115         | -                | Gauge and Sample | 37.855271629° S | 144.757394414° E  | 21.118m AHD | 15m                  | 9m                  | 15m                    | Water encountered at 13m         |
| Onsite   | MW116         | -                | Gauge Only       | 37.857994579° S | 144.755426629° E  | 14.862m AHD | 12.5m                | 6.5m                | 12.5m                  | Not encountered                  |
| Onsite   | MW117         | -                | Gauge and Sample | 37.861376746° S | 144.756968035° E  | 14.118m AHD | 9.7m                 | 4m                  | 9m                     | Water encountered at 9m          |
| Onsite   | MW118         | -                | Gauge and Sample | 37.862503136° S | 144.756985142° E  | 13.073m AHD | 8m                   | 4.5m                | 7.5m                   | Water encountered at well bottom |
| Onsite   | MW119         | -                | Gauge Only       | 37.864380625° S | 144.757612262° E  | 12.025m AHD | 9.2m                 | 6.2m                | 9.2m                   | Not encountered                  |
| Onsite   | MW120         | -                | Gauge and Sample | 37.865893855° S | 144.754707577° E  | 11.316m AHD | 8.9m                 | 5.9m                | 8.9m                   | Water encountered at 8m          |
| Offsite  | MW125         | -                | Gauge Only       | 37.869100713° S | 144.755452777° E  | 11.207m AHD | 10m                  | 6m                  | 9m                     | Not encountered                  |
| Offsite  | MW127         | -                | Gauge Only       | 37.862353954° S | 144.7473344076° E | 14.746m AHD | 9.5m                 | 6.5m                | 9.5m                   | Not encountered                  |
| Offsite  | MW128         | -                | Gauge Only       | 37.863457823° S | 144.743969805° E  | 15.031m AHD | 10.1m                | 7m                  | 10m                    | Not encountered                  |
| Offsite  | MW129         | -                | Gauge and Sample | -               | -                 | 15.294m AHD | 10                   | 7                   | 10                     | -                                |
| Offsite  | MW132         | -                | Gauge Only       | 37.860542460° S | 144.739508156° E  | 16.547m AHD | 8.9m                 | 7.3m                | 8.9m                   | Not encountered                  |
| Offsite  | MW133         | -                | Gauge Only       | 37.861410399° S | 144.742266606° E  | 16.202m AHD | 10m                  | 7m                  | 10m                    | Not encountered                  |
| Offsite  | MW134         | -                | Gauge Only       | 37.858305860° S | 144.755314665° E  | 14.49m AHD  | 9.1m                 | 5.5m                | 9.1m                   | Not encountered                  |
| Offsite  | MW135         | -                | Gauge Only       | 37.857061319° S | 144.747312131° E  | 16.789m AHD | 8.3m                 | 4.8m                | 7.8m                   | Not encountered                  |
| Offsite  | MW136         | -                | Gauge Only       | 37.857824376° S | 144.742029844° E  | 17.449m AHD | 9.5m                 | 6m                  | 9m                     | Not encountered                  |
| Onsite   | MW138         | -                | Gauge and Sample | 37.864628900° S | 144.766032795° E  | 10.72m AHD  | 9.1m                 | 5m                  | 8m                     | Not encountered                  |
| Onsite   | MW139         | -                | Gauge and Sample | 37.863821775° S | 144.765592727° E  | 11.08m AHD  | 9.5m                 | 6.5m                | 9.5m                   | Water encountered at 5m          |
| Onsite   | MW140         | -                | Gauge and Sample | 37.862842850° S | 144.766132998° E  | 10.44m AHD  | 9.5m                 | 6.5m                | 9.5m                   | Not encountered                  |
| Onsite   | MW152         | GW155/6          | Gauge and Sample | -37.86836124    | 144.7521529       | 11.638m AHD | 17.5                 | 5m                  | 8m                     | Water encountered at 4m          |
| Onsite   | MW154         | GW2/1            | Gauge Only       | -37.86697562    | 144.7546816       | NM          | 12m                  | 5m                  | 12m                    | Water level at 6.2m              |
| Onsite   | MW155         | GW2/2            | Gauge and Sample | -37.86679924    | 144.7540518       | 11.646m AHD | 8.1m                 | 5m                  | 8m                     | Not encountered                  |
| Onsite   | MW157         | GW2/4            | Gauge Only       | -37.86728482    | 144.7541296       | 11.581m AHD | 7.9m                 | 4.9m                | 7.9m                   | Moisture encountered at 7.5m     |
| Onsite   | MW159         | GW2/6            | Gauge Only       | -37.8675962     | 144.7540703       | 11.096m AHD | 7.1m                 | 3m                  | 6m                     | Not encountered                  |
| Onsite   | MW163         | GW34/1           | Gauge and Sample | -37.86294891    | 144.7581522       | NM          | 11m                  | 6m                  | 12m (?)                | Water level at 7.4m              |
| Onsite   | MW168         | GW582/2          | Gauge Only       | -37.86766181    | 144.7546893       | 11.446m AHD | 8.3m                 | 7.1m                | 8.1m                   | Water encountered at 6m          |
| Onsite   | MW171         | GW582/5          | Gauge Only       | -37.86800942    | 144.7541341       | 12.422m AHD | 7.9m                 | 4.9m                | 7.9m                   | Water encountered at 7.9m        |
| Onsite   | MW173         | GW582/7          | Gauge Only       | -37.86792788    | 144.7544372       | 12.255m AHD | 7.8m                 | 4.8m                | 7.8m                   | Water encountered at 7.5m        |
| Onsite   | MW175         | GW598/1          | Gauge Only       | -37.86606729    | 144.7660995       | NM          | 12m                  | 8m                  | 12m                    | Water level at 6.4m              |
| Onsite   | MW176         | GW7/1            | Gauge Only       | -37.86654421    | 144.7547832       | NM          | 9m                   | 4.5m                | 9m                     | Water level at 5.5m              |
| Onsite   | MW181         | GW7/14           | Gauge Only       | -37.86738942    | 144.7552527       | 11.552m AHD | 7.9m                 | 3.5m                | 7.5m                   | Water encountered at 7.5m        |
| Onsite   | MW185         | GW7/5            | Gauge and Sample | -37.86663124    | 144.7545416       | 11.191m AHD | 8.2m                 | 5m                  | 8m                     | Not encountered                  |
| Onsite   | MW186         | GW7/6            | Gauge Only       | -37.86638891    | 144.7551644       | 10.733m AHD | 7.3m                 | 4.3m                | 7.3m                   | Not encountered                  |

| Property | Location Code | Alternative Name | Monitoring Type  | Latitude        | Longitude        | TOC         | Depth to well bottom | Top of Screen Depth | Bottom of screen depth | Aquifer                 |
|----------|---------------|------------------|------------------|-----------------|------------------|-------------|----------------------|---------------------|------------------------|-------------------------|
| Onsite   | MW190         | GW81/1           | Gauge Only       | -37.8682523     | 144.7526488      | NM          | 10m                  | 4m                  | 10m                    | Water level at 5m       |
| Onsite   | MW192         | GW81/3           | Gauge and Sample | -37.86804414    | 144.7527717      | 11.559m AHD | 8.9m                 | 4.9m                | 8.9m                   | Water encountered at 6m |
| Onsite   | MW196         | GW81/7           | Gauge Only       | -37.86818875    | 144.7529921      | 12.504m AHD | 19.6m                | 15.2m               | 19.2                   | NA                      |
| Onsite   | MW197         | GW88A/1          | Gauge Only       | -37.86827925    | 144.7516442      | NM          | 14.4m                | 6m                  | 14.4m                  | Water level at 7.1m     |
| Onsite   | MW201         | GW90/3           | Gauge Only       | -37.86717627    | 144.7562623      | 11.338m AHD | 7m                   | 5m                  | 7m                     | NA                      |
| Onsite   | MW144         | GW130/1          | Gauge and Sample | -37.861404      | 144.762796       | 12.656m AHD | 5m                   | 2m                  | 5m                     | NA                      |
| Onsite   | MW146         | GW130/3          | Gauge and Sample | -37.860111      | 144.760806       | 13.145m AHD | 12m                  | 6m                  | 12m                    | NA                      |
| Onsite   | MW182         | GW7/15           | Gauge and Sample | -37.867566      | 144.755804       | 11.018m AHD | 7m                   | 5m                  | 7m                     | NA                      |
| Onsite   | MW200         | GW90/2           | Gauge and Sample | -37.866607      | 144.755918       | 11.346m AHD | 7.1m                 | 4.1m                | 7.1m                   | NA                      |
| Onsite   | MW207         | GWAM/4           | Gauge and Sample | -37.864693      | 144.758072       | 11.681m AHD | 7.8m                 | 4.8m                | 7.8m                   | NA                      |
| Onsite   | MW208         | GWAM/5           | Gauge and Sample | -37.863308      | 144.758241       | 12.91m AHD  | 9.2m                 | 5.2m                | 9.2m                   | NA                      |
| Onsite   | MW211         | GW8/2            | Gauge and Sample | -37.859615      | 144.75682        | NM          | 13.5m                | 6.5m                | 13.5m                  | Water level at 7.6m     |
| Onsite   | MW217         | GWGA01           | Gauge and Sample | -37.857576      | 144.757289       | 17.236      | 13.5                 | 8                   | 12                     |                         |
| Onsite   | MW228         | MW228            | Gauge and Sample | -37.870576      | 144.764085       | 11.01m AHD  | NA                   | NA                  | NA                     | NA                      |
| Offsite  | MW230         | MW230            | Gauge Only       | -37.86724699    | 144.7702766      | 8.4         | 7.5                  | 4                   | 7                      |                         |
| Onsite   | MW145         | GW130/2          | Gauge Only       | 37.860127778° S | 144.762394186° E | 12.359m AHD | 5m                   | 2m                  | 5m                     | NA                      |
| Onsite   | MW164         | GW36/1           | Gauge Only       | 37.861436218° S | 144.757506928° E | NM          | 12.1m                | 5.4m                | 12m                    | Water level at 7m       |
| Onsite   | MW165         | GW514/1          | Gauge Only       | 303466.97       | 5807309.33       | 10.6        | 0                    | 0                   | 0                      |                         |
| Onsite   | MW188         | GW7/8            | Gauge Only       | 302550.341      | 5806564.5        | 11.223      | 7                    | 4.2                 | 6.8                    |                         |
| Onsite   | MW194         | GW81/5           | Gauge Only       |                 |                  | 11.406m AHD | 8.8m                 | 5.8m                | 8.8m                   | Water encountered at 6m |
| Onsite   | MW203         | GWA/1            | Gauge Only       | 37.855573046° S | 144.755285399° E | NM          | 28m                  | 11m                 | 28m                    | Water level at 12m      |
| Onsite   | MW206         | GWAM/3           | Gauge Only       | 37.864016874° S | 144.757767545° E | 12.542m AHD | 9m                   | 5m                  | 9m                     | NA                      |
| Onsite   | MW209         | GWAM/6           | Gauge Only       | 37.864755767° S | 144.758791988° E | 12.683m AHD | 8m                   | 4m                  | 8m                     | NA                      |
| Onsite   | MW212         | GWC/1            | Gauge Only       | 37.858041611° S | 144.760454579° E | NM          | 10m                  | 4m                  | 10m                    | Water level at 5m       |
| Onsite   | MW213         | GWD/1            | Gauge Only       | 37.858216158° S | 144.757950626° E | NM          | 15m                  | 5m                  | 15m                    | Water level at 6m       |
| Onsite   | MW214         | GWE/1            | Gauge Only       | 37.856891946° S | 144.757412130° E | NM          | 25m                  | 6m                  | 25m                    | Water level at 7.4m     |
| Onsite   | MW215         | GWG/1            | Gauge Only       | 37.856611109° S | 144.763457371° E | NM          | 7.9m                 | 2.9m                | 7.9m                   | Water level at 4.4m     |
| Onsite   | MW218         | GWH/1            | Gauge Only       | 37.855289423° S | 144.765707214° E | NM          | 7.2m                 | 2.8m                | 7.2m                   | Water level at 4m       |
| Onsite   | MW222         | GWK/1            | Gauge Only       | 37.852171084° S | 144.768417921° E | NM          | 12m                  | 5m                  | 12m                    | Water level at 6.4m     |
| Onsite   | MW225         | GWSTP/1          | Gauge Only       | 37.866524317° S | 144.757199435° E | NM          | 12.8m                | 5.5m                | 12.5m                  | NA                      |
| Offsite  | MW121         | MW121            | Gauge and Sample | -37.873788      | 144.755622       | 4.84m AHD   | 10.3m                | 7.3m                | 10.3m                  | NA                      |
| Offsite  | MW123         | MW123            | Gauge and Sample | -37.873332      | 144.761047       | 5.97m AHD   | 8.5m                 | 6m                  | 7.5m                   | Wet from 1m down        |
| Offsite  | MW124         | MW124            | Gauge and Sample | -37.869168      | 144.753149       | 10.79m AHD  | 7m                   | 5m                  | 7m                     | NA                      |
| Offsite  | MW126         | MW126            | Gauge and Sample | -37.868884      | 144.757838       | 9.224m AHD  | 7.5m                 | 3.3m                | 6.3m                   | NA                      |
| Offsite  | MW229         | MW229            | Gauge and Sample | -37.867553      | 144.76666        | 10.54m AHD  | NA                   | NA                  | NA                     | NA                      |
| Offsite  | MW130         | MW130            | Gauge and Sample | -37.86391       | 144.738415       | 15.824m AHD | 9.85m                | 6.85m               | 9.85m                  | NA                      |
| Offsite  | MW131         | MW131            | Gauge and Sample | -37.863775      | 144.735501       | 17.146m AHD | 10.1m                | 7m                  | 10m                    | NA                      |
| Offsite  | MW137         | MW137            | Gauge and Sample | -37.861356      | 144.73495        | 18.026m AHD | 10.2m                | 7m                  | 10m                    | NA                      |
| Offsite  | MW122         | MW122            | Gauge Only       | -37.87363462    | 144.7571594      | 4.339       | 10.3                 | 7.3                 | 10.3                   |                         |

Notes:

NA: Information Not Available

NM: Not Measured

APPENDIX

D

GROUNDWATER LOCATIONS CURRENT AND  
ALTERNATE IDS



now



Appendix D -  
 Groundwater Location Alternative IDs

| Groundwater Location Code | Alternative Name(s) |
|---------------------------|---------------------|
| MW102                     | -                   |
| MW103                     | -                   |
| MW105                     | -                   |
| MW107                     | -                   |
| MW109                     | -                   |
| MW110                     | -                   |
| MW115                     | -                   |
| MW117                     | -                   |
| MW118                     | -                   |
| MW120                     | -                   |
| MW138                     | -                   |
| MW139                     | -                   |
| MW140                     | -                   |
| MW152                     | GW155/6             |
| MW155                     | GW2/2               |
| MW163                     | GW34/1              |
| MW185                     | GW7/5               |
| MW192                     | GW81/3              |
| MW144                     | GW130/1             |
| MW146                     | GW130/3             |
| MW182                     | GW7/15              |
| MW200                     | GW90/2              |
| MW207                     | GWAM/4              |
| MW208                     | GWAM/5              |
| MW211                     | GWB/2               |
| MW217                     | GWGA01              |
| MW228                     | MW228               |
| MW121                     | MW121               |
| MW123                     | MW123               |
| MW124                     | MW124               |
| MW126                     | MW126               |
| MW229                     | MW229               |
| MW130                     | MW130               |
| MW131                     | MW131               |
| MW137                     | MW137               |
| MW100                     | -                   |
| MW101                     | -                   |
| MW104                     | -                   |
| MW106                     | -                   |
| MW108                     | -                   |
| MW111                     | -                   |
| MW112                     | -                   |
| MW113                     | -                   |
| MW114                     | -                   |
| MW116                     | -                   |
| MW119                     | -                   |

Appendix D -  
 Groundwater Location Alternative IDs

| Groundwater Location Code | Alternative Name(s) |
|---------------------------|---------------------|
| MW125                     | -                   |
| MW127                     | -                   |
| MW128                     | -                   |
| MW129                     | -                   |
| MW132                     | -                   |
| MW133                     | -                   |
| MW134                     | -                   |
| MW135                     | -                   |
| MW136                     | -                   |
| MW154                     | GW2/1               |
| MW157                     | GW2/4               |
| MW159                     | GW2/6               |
| MW168                     | GW582/2             |
| MW171                     | GW582/5             |
| MW173                     | GW582/7             |
| MW175                     | GW598/1             |
| MW176                     | GW7/1               |
| MW181                     | GW7/14              |
| MW186                     | GW7/6               |
| MW190                     | GW81/1              |
| MW196                     | GW81/7              |
| MW197                     | GW88A/1             |
| MW201                     | GW90/3              |
| MW208                     | GWAM/5              |
| MW230                     | -                   |
| MW145                     | GW130/2             |
| MW164                     | GW36/1              |
| MW165                     | GW514/1             |
| MW188                     | GW7/8               |
| MW194                     | GW81/5              |
| MW203                     | GWA/1               |
| MW206                     | GWAM/3              |
| MW209                     | GWAM/6              |
| MW212                     | GWC/1               |
| MW213                     | GWD/1               |
| MW214                     | GWE/1               |
| MW215                     | GWG/1               |
| MW218                     | GWH/1               |
| MW222                     | GWK/1               |
| MW225                     | GWSTP/1             |
| MW122                     |                     |

APPENDIX

F

ABOUT SITE ENVIRONMENTAL  
ASSESSMENT REPORTS



now





# About Site Environmental Assessment Reports

## 1. Introduction

This document explains the Environmental Site Assessment (ESA) process and the context that applies to the use of Environmental Reports issued by Cardno now Stantec.

## 2. What is an ESA?

Environmental Site Assessments (ESA) are undertaken for a range of purposes, specific to the brief issued by the client in each case. The scope may include one or a combination of any of the following:

- A factual report of the condition of a portion of the site or one aspect of an entire site.
- Assessment of the contamination levels in soil to be removed from a site – a waste classification assessment.
- Validation of the success of remediation of a site or a portion of a site.
- Provision of a professional opinion about the suitability of a site for one or more uses, in terms of its contamination status.

The scope of any ESA needs to be defined at the outset.

An ESA is not an Environmental Audit. Such audits are undertaken in accordance with the provisions of regulations enacted in various states of Australia, and are referred to as Site Audits in some jurisdictions. Statutory audits provide certification by EPA accredited auditors that a site is suitable for one or more uses. An ESA may provide similar advice but cannot be used in place of an audit if the latter is required by regulation in any instance. However in some circumstances and jurisdictions an ESA is sufficient to provide “environmental sign-off” of a site.

An ESA may be undertaken for due diligence purposes, to establish whether the site has been impacted to the extent that some beneficial uses of the site may be precluded. Due diligence audits in many cases may be completed as non-statutory Audits, although in some jurisdictions they can also be statutory audits, if defined as such at the outset.

## 3. The ESA Process

The Client generally initiates the ESA process by specifying a brief which identifies the specific objectives of the assessment. If not, it is the consultants' duty to so specify the ESA

In the case of an ESA to provide an opinion about the suitability of the site for use, it would be conducted in accordance with NEPM (Site Assessment). Such ESA would not commence until a thorough site history assessment (Phase 1 Assessment: to identify the potential for significant contamination at a site) is conducted. However, where the history is unclear, a broad screening of chemical parameters can be used to test environmental media. This normally includes a broad range of organic and inorganic compounds and elements, often referred to as an Environmental Screen.

(In the case of an ESA for a purpose other than to provide an opinion about the suitability of the site for use, it is not always necessary to undertake a Phase 1 assessment.)

The ESA requires sampling of soil at representative locations across the site. A NATA accredited laboratory performs the analysis of soil. It is impractical for all of the soil to be assessed. The ESA is often based on a statistical method of grid or random sampling, augmented by targeted sampling at locations known or suspected to be contaminated. Guidance on sampling strategy and density is provided in Australian Standard AS4482.1–2005. However, some considerable degree of judgement is still required in the application of any sampling and testing strategy. For example the blanket application of the “hot spot” method presented in this standard is often inappropriate given its limitations.

The field program also investigates the likelihood of contamination below the site surface. Field investigations must sample and test fill as well as the natural soils. If contamination is found then it is common for further work to be undertaken to characterise, to the extent practical, its vertical and horizontal extent. However, where fill is encountered and testing shows it to be uncontaminated, it must be realised that the heterogeneous nature of the material might mean that not all pockets of contaminated material can be detected using normal sampling regimes.

EPA guidelines for auditors, that may be relevant for an ESA, indicate the need in all cases to consider the potential for groundwater contamination in any site. This does not mean all sites need to be drilled to sample groundwater, but it is most often the case. Most hydrogeological settings and groundwater conditions are complex and vary in space and time. The condition of groundwater is investigated to identify if any beneficial use or environmental value of groundwater is precluded due to contamination.

As previously stated for soil, all groundwater at the site cannot be tested. The environmental investigations are conducted in accordance with industry standards and guidelines (e.g. EPA Vic Pub 668). This provides a level of confidence that a sufficiently comprehensive assessment of the groundwater at the site is achieved.

Where an investigation shows that groundwater is polluted, consideration should be given to assessing the risks and the need for and practicality of any clean up.

#### 4. Environmental Assessment Report

The ESA Report details the findings of the ESA. It provides summary information on the site definition, the reasons for the assessment and other relevant facts. It reviews the scope and quality of the site investigations, laboratory testing and data analyses undertaken. These reports also present a review of the contamination status of the site, the need for any further clean up, and an opinion on the suitability of the site for a range of beneficial uses and land uses such as “residential – low density”, “commercial” etc, as appropriate.

However, as noted above, some ESA have a narrow scope such as for classification of waste soil for removal from site, and do not make conclusions on suitability of site for use.

The ESA Report generally includes copies of other documents and reports, necessary to support the assessment findings, presented as appendices. These can contain more detailed information than the body of the ESA Report. Care should be taken to also read the appended documents and the ESA report in full.

Cardno now Stantec generally issues reports in electronic form (e-Report) on CD ROM. ESA Reports are issued in this format as Adobe Acrobat™ PDF files. However, a paper copy of the executive summary of the ESA Report is generally issued to the client, and others as required by the brief or by regulation.

#### 5. Limitations of Environmental Assessment Report

The ESA Report is prepared in a manner that can be easily read by a lay person with a legitimate interest in the contamination status of the site, such as the site owner or occupier, EPA and Local Planning Authority. The ESA report is not intended for use by other parties or for other purposes. Anyone who uses the assessment report for purposes other than specified in the report, does so at their own risk.

The site should only be used for one or more of the beneficial uses and land uses identified in the ESA as suitable.

The conditions and qualifications may apply to the suitability of the site for use, and it is the responsibility of the Client to be cognizant of and accept these in accepting the report. Cardno now Stantec are only responsible for the issuing of the ESA report but accepts no liability for the costs incurred in the implementation of ESA findings.

The ESA provides a “snapshot” of the site conditions at the time of the site investigation. Consequently, the report may not be valid at a later time if there has been any change to the contamination status of the site in that time. Verification of the status of the site may be required in cases where a significant time has elapsed, or site conditions have changed since the assessment and audit.

The ESA is necessarily limited by constraints such as time, cost and available information; although normal professional practice at the time has been applied with all due care to prepare the report. A necessary requirement of this process is the horizontal and vertical interpolation of data from discrete locations. However, site conditions are generally not homogenous and some discrepancies will occur between the actual and predicted results at locations not directly sampled. There is a risk that contamination may occur at the site and not be identified by a competent investigation and assessment. The approach adopted in sampling (a combination of statistically based grid and judgmental sampling) seeks to reduce, but cannot eliminate, this risk.

Where unexpected occurrences of contamination arise, subsequent to the issue of the ESA Report, Cardno now Stantec should be permitted to make an interpretation of these facts in relation to the ESA Report findings. Consequently, the Client should inform Cardno now Stantec and seek their opinion. Cardno now Stantec accepts no liability for costs incurred due to such unexpected

occurrences, given the inherent uncertainties in the assessment process.

Cardno now Stantec uses information provided by other parties as the basis for the ESA, and reliance on this information is at the discretion of Cardno now Stantec. However, however Cardno now Stantec cannot guarantee any of the facts, findings or conclusions presented by other parties. Cardno now Stantec will not be liable for the use of information, provided by others that is subsequently found to be intentionally misleading.

The ESA Report is not and does not purport to be anything other than a contaminated land ESA. It is not a geotechnical report and bore logs reproduced are for interpretation of the likely distribution of contamination. They are not intended for geotechnical interpretations and may not be adequate for this purpose.

The ESA Report is not intended to be a comprehensive analysis of the presence and associated risk of asbestos in buildings and services. Where asbestos in buildings and services is known or likely, the report may only caution that an appropriately qualified person be engaged to undertake demolition to avoid contamination of the site.

**Cardno now Stantec**

19 August 2022